

International Green Economy Collaborations

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Abstract— This paper identifies and describes a new but a rapidly growing area of economic and climate governance: International Green Economy Collaborations (IGECs). Examples such as the US-EU Carbon-Based Sectoral Arrangement on Steel and Aluminum Trade illustrate the twin drivers of the emergence of IGECs: green growth imperatives and geo-economics. We argue IGECs are related but distinct from either Green Industrial Policy or Deep Trade Agreements. IGECs are particularly well suited to support green transition by addressing cross-border market failures between partner countries and by facilitating deep cooperation on embedded emissions accounting rules. Their role in bifurcation of the global economy, and its implications for the net zero transition remain to be seen.

Keywords — *green trade, green industrial policy, technology competition, deep trade agreements*

I. WHAT ARE INTERNATIONAL GREEN ECONOMY COLLABORATIONS?

Definition: International collaborations aimed at achieving mutual economic and environmental benefits through inducing structural change in shared value chains.

Examples of International Green Economy Collaborations (IGECs) include the Australia-Singapore Green Economy Agreement currently under negotiation, the Proposed US EU Carbon-Based Sectoral Arrangement on Steel and Aluminum Trade, EU-Japan Green Alliance, and Germany's initiative of an international "carbon club" with G7 as the founding members. Australia has also reached Low and Zero Emissions Technology Partnership with South Korea.

These collaborations contain a range of collaborative instruments including development of shared embedded emissions accounting methodologies, the congruent definition for sustainable finance (in the EU-Japan Green Alliance).

A. Viewed as International Green Industrial Policy

One way of viewing international green economy collaborations (IGECs) is the international extension of Green Industrial Policy (GIP). GIP has been variously defined in the literature, including as "policy options for managing structural change that accounts for both the productivity and the environmental challenges in a harmonized way." (Altenburg and Assmann, 2017, p.xii) and as policies that "promote industries that produce green technologies and encourage traditional industries to produce goods and services in greener ways." (Harrison et al., 2017, p.253). Under either of these

broad definitions of GIP, it would be easy to view IGECs as IGIP – that is – International Green Industrial Policy. The IGIP version of Altenburg and Assmann's definition would read "policy options for managing structural change in shared value chains that accounts for both the productivity and the environmental challenges in a harmonized way." while that of Harrison et al would read "promote shared value chains that produce green technologies and encourage traditional industries to produce goods and services in greener ways." Not all authors, however, take such a broad view of GIP.

Some leading contributors on GIP take a more focused lens and concentrate on GIP as innovation and infant industry support for new green technologies and industries. They, therefore, tend to exclude policies aimed at sunset industries or at improving the environmental performance of traditional industries. Rodrik (2014) implicitly defines GIP as industry policy to facilitate green growth. In particular, GIP should increase the availability of "green technologies: production techniques that economize on exhaustible resources and emit fewer greenhouse gases" (p. 469) by ensuring that investments in such take place at an appropriate scale. Similarly, according to Karp and Stevenson (2012), GIP "refers to government attempts to hasten the development of low-carbon alternatives to fossil fuels." Carbon pricing, for example, is explicitly mentioned by Harrison et al (2017) but would not seem to fall under Rodrick or Karp's definitions of GIP.

Economy-wide policies such as carbon pricing also seem to fall outside the definition of GIP proposed by Hallegatte et al. (2013, p.3) According to them GIP comprises "industrial policies with an environmental goal—or more precisely, as sector-targeted policies that affect the economic production structure with the aim of generating environmental benefits." So, while collaborations on embedded emissions accounting methodologies for specific sectors like steel and aluminium would seem to fit under the international analogue of Hallegatte et al's definition, collaborations on economy-wide embedded emissions accounting frameworks would not.

B. Viewed as Extensions of Environmentally-Focussed Deep Trade Agreements

An alternative way of viewing IGECs is as environmentally-focussed deep trade agreements (E-DTAs). While some examples of IGECs have a lot of overlap with DTAs, generally this view is harder to reconcile with our understanding of IGECs.

Mattoo, Rocha & Ruta (2020, p.8-9) provide the currently most comprehensive definition of Deep Trade Agreements

(DTAs). They illustrate their concept of DTAs diagrammatically as per Figure 1.

Many of the components of IGECs overlap with components of DTAs. For example, efforts to align definitions of green economy, and embedded emissions accounting can be understood as trade facilitation, and/or efforts to avoid technical barriers to trade. Similarly, articles and chapters towards environmental objectives are commonly included in DTAs.



Fig. 1. Scope of Deep Trade Agreements: Source: Mattoo et al (2020)

However, there are also important differences between what is traditionally included in DTAs and what we understand IGECs to comprise. In traditional DTAs, TBT rules are aimed at ensuring domestic-market focussed environmental rules to not pose a greater barrier to trade than is necessary to achieve the environmental outcome. Whereas IGECs environmental aims are often targeted at the cross-border value chain – that is the trade itself. Furthermore, the environmental components of DTAs are about “obligations” or constraints on exporters to protect consumer and environmental welfare, while IGECs focus on supporting exporters involved in green value chains.

II. DRIVERS AND PURPOSE OF IGECs

A. Green Growth Imperatives

Environmental crises – especially climate change – are undoubtedly the ultimate driver of the rise of IGECs. A proximate cause is the net zero commitments that have been made by 130 countries and over 1,200 companies in recent years. There is broad agreement that simply pricing greenhouse emissions externalities is both too politically fraught and not sufficient anyway to achieve the transformations required in every country in the world. Green industrial policies are needed to address the multitude of market failures that inhibit the emergence and growth of green technologies and industries required to replace polluting ones.

International Green Economy Collaborations are the logical extension of these green industrial policy drivers in the global economy. International value chains have both environmental and economic implications that are too large to ignore. Around 22% of global greenhouse gas emissions are estimated to be embedded in international trade. Trade and foreign investment are widely understood as drivers of growth and poverty reduction, and their growth rate had usually been significantly higher than that of GDP for the last 40 years. IGECs are, however, about more than merely ensuring domestic market failures affecting export sectors are addressed.

IGECs can help to ensure trade and its associated welfare gains do not fall victim to the increased regulation required to transition economies to net zero. Increased regulatory complexity is inevitable if governments are to steer economies towards net zero. A case in point is the trend towards improved emissions accounting, both for emissions embedded in goods and services and for climate-related financial disclosures. Although these accounting frameworks are necessary to address market failures that otherwise arise from information asymmetries, they inevitably contribute regulatory complexity. Difference in such regulatory frameworks arising from current and historical governance differences across economies can very quickly become non-tariff barriers to trade – intentional or not. IGECs provide governance mechanisms to support alignment and interoperability of such regulations. In this way they provide trade-facilitation for the rapidly evolving space of trade-related climate policies.

IGECs are also able to address cross-border market failures other than non-tariff barriers to trade. Arguably this purpose is what sets them apart from either Green Industrial Policy or traditional Deep Trade Agreements. A leading example of these cross-border market failures is the “chicken and egg” problem affecting vertical international value chains. For example, investors in countries with potential to competitively produce and export green hydrogen are reluctant to invest in the absence of well-developed downstream markets. Meanwhile, investors in countries with leading hydrogen-using technologies are reluctant to implement those technologies at large scale in the absence of sufficient upstream supply scale. Several existing and proposed IGECs seek to address exactly this cross-border market failure. For instance, the EU and Japan have announced to form a Green Alliance to accelerate the transition of both economies towards becoming climate-neutral, circular and resource-efficient in the coming decades. Both parties agree to pursue a cost-effective, safe and sustainable energy transition by adopting low-carbon technologies, strengthen environmental protection, increase regulatory cooperation, consolidate R&D collaboration and help regulatory convergence in sustainable finance. Similarly, the EU and the US have issued a Joint Statement on Trade in Steel and Aluminium. The US and China also issued Joint Glasgow Declaration on Enhancing Climate Action in the 2020s to close the remaining gap in efforts around the world to address the climate crisis as soon as possible, and cooperate on regulatory frameworks and environmental standards related to reducing emissions of greenhouse gases in the 2020s among other issues.

B. Geoeconomics/Geopolitics

An emerging driver of IGECs is cooperation between countries to achieve geo-economic and strategic objectives. The global net zero transition will lead to a substantial increase in trade and investment in both key components for clean energy technologies, such as solar inverters, wind turbines and battery anodes, polysilicon and semiconductor “wafers” used in solar panels, and the critical mineral inputs to these components, such as lithium, cobalt, copper, nickel, silica and rare earths. The IEA estimates that global trade in critical minerals will increase from around 10 per cent of energy-related trade to almost 50 per cent by 2050.

The need to diversify and secure the supply chains for these products is a driver for both Green Industrial Policy and

new international collaborations for the US and its partners. Policies such as Federal Tax Credits for solar panels, and tariffs for imported solar panels, and partnerships such as the proposed Indo-Pacific Economic Framework (IPEF) have at least an implicit aim of ameliorating the market power of the dominant producer—China.

Similarly, while the “US EU Carbon-Based Sectoral Arrangement on Steel and Aluminum Trade” is ostensibly aimed at encouraging production and trade in green steel and aluminium, it also seeks to reduce China’s share of the global export market for steel and aluminium, which it has dominated for years. This has an underlying geo-economic rationale when viewed in light of US-China strategic competition.

As countries race to decarbonise their economies, the risks and opportunities resulting from the accumulation of market power in new sources of energy and resources will continue to drive new forms of cooperation.

III. CONCLUSION

This paper identifies a new and rapidly growing phenomenon in international law and policy. International Green Economy Collaborations (IGECs) sit at the intersection of international economic and climate governance. They are related but distinct from either Green Industrial Policy or Deep

Trade Agreements. By defining IGECs and identifying their purpose and drivers, this paper lays the groundwork for future positivist research on the topic, including empirical investigations of causes and consequences – environmental, economic and geopolitical. Normative research on best-practice IGEC will also benefit from this foundational paper.

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