



Ad Hoc Expert Group Meeting on  
**Implementing The Paris Agreement:  
Response Measures,  
Economic Diversification and Trade**

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## Introduction

The Paris Agreement opens up the prospects of a *collective transformation*, not just for individual economies, but for the global economy as well. This transformation will require a massive reallocation of resources at the international level. While at the domestic level, it will necessitate structural changes on a scale similar to the wave of economic liberalization, which are bound to raise equity and distributional concerns that have been central to UNCTAD's work for decades.

The most important feature of this transformation is the shared challenge of *economic diversification*. Countries will have to change the shape of their economies and the way in which they seek to develop the industries that will power their economies. There is also a related challenge of making this transformation a *just* and *equitable* one. In particular, countries will have to deal with its effects in terms of jobs to be gained - or lost.

*Economic diversification* and a *just transition of the workforce* are now front and center in the work of the UNFCCC Forum on Response Measures. And while the just transition of the workforce is considered an objective, economic diversification is mostly seen as a tool to address the impacts of mitigation measures.

*Response measures* denote in the UNFCCC parlance mitigation measures with cross-border impacts.<sup>1</sup> Historically related to compensation to oil-producing countries for not exploiting their reserves, the notion of response measures has evolved and is now seen in the context of sustainable development. The negative connotation still prevails though. For developed countries, these measures tend to raise *competitiveness* concerns. For developing countries, they normally mean concerns relating to *economic diversification*.

Trade serves as a transmission mechanism for cross-border impacts and is largely seen as *part of the problem*, with competitiveness considerations dominating the policy discourse. Now that the Paris Agreement is in place, and as the protectionist pressures mount in various quarters, it is high time to take a look at trade as *part of the solution* and explore its potential in helping countries, particularly developing ones, diversify their economies and create jobs as they make their transition to the low-carbon future.

## Managing the risks

Economic diversification is intrinsic to development. As economies grow they produce an ever increasing quantity, quality and variety of goods and services. In most cases, countries start off with minimum technological capabilities that they recombine to create more technologies in the same way letters are used to create new words in a game of scrabble (Hausman). Not all letters are created equal. Some have higher values, but they do not combine readily to form words.

According to the *product space* theory, commodities are like J, Q, X, and Z, which may well have high value but cannot be readily used to create words.<sup>2</sup> Players often have to substitute them with more versatile letters, i.e. technological capabilities that can generate more combinations than others. Semiconductor and chemical industries are examples of such platform or generic technologies. On the other hand, extractive industries crowd out manufacturing, making diversification more difficult.

*A priori*, the principle of comparative advantage and specializing on "what one does best" puts trade at cross-purposes with economic diversification, which is known as the specialization *versus* diversification paradox. However they do not have to be at odds. Empirical evidence indicates that low-income countries typically

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<sup>1</sup> Paris Agreement: Art 4, paragraph 15, "Parties shall take into consideration in the implementation of this Agreement the concerns of Parties with economies most affected by the impacts of response measures, particularly developing country Parties.

<sup>2</sup> Hausman, Ricardo, Hidalgo, César et al. The Atlas of Economic Complexity: Mapping Paths to Prosperity.

specialize in a narrow range of products.<sup>3</sup> As income levels rise, the production and exports diversifies. Eventually, this diversification trend slows down and veers towards re-specialization.<sup>4</sup>

The stimulating effect of exports on the creation of new industries takes place through forward and backward linkages.<sup>5</sup> Imports improve developing countries' access to a wide range of climate friendly goods, services and technologies that can serve as platforms for economic diversification. For instance, revenue from commodities can be used to acquire technological capabilities that have higher recombinant value.

More importantly, the trading system is increasingly used to make goods, not just to sell goods. In the manufacturing sector up to 80 percent of world trade takes place within global value chains (GVCs), and around 60 percent of world merchandise trade is in intermediate goods. To quote Richard Baldwin, "with many products made everywhere, trade has been, in effect, denationalized." Along with trade, comparative advantage has been de-nationalized, too. GVCs combine national competitive advantages to produce goods in the most cost-effective locations.<sup>6</sup>

GVCs help solve the paradox of specialization, allowing developing countries to join existing value chains instead of building them. They offer a fast track for diversification, and sometimes may even confer latecomers an advantage. Indeed, many of the newly industrialized countries started off with a lot less financial and human resources than the majority of developing countries have today.

The challenge is not necessarily to climb the ladder of value added or to develop new products or processes, but to *discover* that a certain product or process, which is already well established in world markets, can be produced locally at low cost. *Product discovery* is particularly relevant to developing countries. To quote Rodrick, "it cannot be the forces of comparative advantage as conventionally understood. The trick seems to be to acquire mastery over a broader range of activities, instead of concentrating on what one does best."<sup>7</sup>

Many success stories of diversification have in common the import-to-export models associated with GVCs. The low carbon growth will have an important role to play in delivering economic diversification and social upgrading in those countries that want to remain relevant and competitive players on the global stage.

Mitigation provides added reasons for and intersects with diversification goals. For carbon dependent countries diversification often means mitigation. The role of economic diversification in mitigation has been a running theme in the UNFCCC negotiations and deliberations for decades. Lately, it is the impact of mitigation measures on economic diversification that is gaining attention. After all, climate change is not about environmental degradation *per se*, but has to do with unsustainable drivers of development.

Mitigation measures may have negative or positive impacts, whether intended or not. Understanding and managing the unintended negative impacts is critical.<sup>8</sup> When done *ex-ante*, this is essentially risk management, which may or may not be part of the climate policy itself. Economic diversification can be seen as a form of *ex-ante* risk management that is not part of the climate policy *per se*. As all economic diversification is not climate orientated and achieves other objectives, there is always a danger of ending up changing the nature of, or transferring climate risks instead of mitigating them.

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<sup>3</sup> Diversification vs. specialization as alternative strategies for economic development: Can we settle a debate by looking at the empirical evidence? Working Paper 03/2012, UNIDO.

<sup>4</sup> Imbs, Jean and Wacziarg, Romain, Stages of Diversification, The American Economic Review, Vol.93, No.1, 2003.

<sup>5</sup> Hirschman, Albert, The Strategy of Economic Development, Yale University Press, 1958.

<sup>6</sup> Baldwin, Richard, The Great Convergence, Information Technology and the New Globalization, Belknap Press of Harvard University Press, 2016.

<sup>7</sup> Rodrik, Dani, One Economics, Many Recipes: Globalization, Institutions, and Economic Growth, Princeton University Press, 2007.

<sup>8</sup> Andrei Marcu, Wijnand Stoefs, Tomasz Chruszczow, Katja Tuokko, Managing the Impact of Mitigation Policies, White Paper prepared for Climate for Sustainable Growth Project, February 2016.



Cross-border impacts redefine mitigation measures as *response measures*. The latter are directly concerned with international trade. On the one hand, they influence trade flows through changes in relative prices and in supply and demand for particular goods, services and technologies. On the other, trade policy measures can be and are used for mitigation purposes as is the case with certain non-tariff barriers - subsidies, *local content requirements* (LCRs) or *trade remedies*<sup>9</sup> - used to promote renewable energy. Countries on the receiving end experience impacts on their economic and social development as well as possibly on their own mitigation measures and may have to *respond to response measures*.

It is not difficult to see how a country might face issues with its trading partners in regard to response measures. A domestic policy may be set at a sectoral level, while trade provisions operate at the national level. Such situations raise challenges when it comes to defining comparable action and comparable effect. A large number of issues may arise since trade policies are concerned with *products*, while climate policies, by contrast, generally address *sectors*.<sup>10</sup> There are tensions in sector-based climate change policy between acting to control carbon leakage and seeking protection from import competition, with the former concern sometimes becoming a surrogate for the latter.

Response measures raises a fundamental question of whether or not an importing country can require that an exporting country deal with emissions in a specific sector, limiting the adjustment to that sector? At issue here is what role exists for a sectoral approach to managing climate change?

GVCs affect response measures and trade with a "finer degree of resolution" (Badlwin). Changes are not about sectors anymore. They are more granular, less predictable and more difficult to control. It is much harder to identify potential winners and losers and to determine precise causes - trade, climate change, technology etc.

Given the challenges of delivering climate solutions through sectoral efforts only, approaches based on value chains are increasingly recognized as a primary mechanism for meeting combined economic diversification and climate policy objectives. These, essentially bottom-up approaches are instrumental in identifying mitigation opportunities as well as in assisting and enhancing their delivery across the various sectors. They draw companies together that are not used to working together. They also promote a more holistic view of upstream and downstream emissions, as well as their direct emissions.

The role a country plays in GVCs is as telling as its emissions profile. Importing a product, rather than the resources to make it reduces domestic resource use. On the other hand, climate effects are being externalized from importing countries to the exporting countries.<sup>11</sup> According to some estimates, up to a quarter of global emissions are embedded in international trade.<sup>12</sup>

Deeper analysis is needed to get a better understanding of how GVCs influence resource use and the environment. When no environmental conditions are attached to moving manufacturing bases, the benefits are outweighed by the costs of soaring greenhouse gas emissions in the off-shore. Geographic dispersion is one of the most frequently cited points of leakage, and one of the hardest to overcome. This is not to say that GVCs should be replaced with local value chains, but there should be ways of strengthening cross-border value chains through creating multiple loops, multiple cycles at differing scales.

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<sup>9</sup> In trade parlance, trade remedies denote antidumping and countervailing duties and safeguards.

<sup>10</sup> Climate policies also address *process and production methods or installations*.

<sup>11</sup> Trade can be thought of as embodying both *direct* and *indirect* resource flows. Direct flows consist of those materials that are actually moved around as part of the traded goods. Indirect flows consist of the resources that are used in producing a good that is then traded. In a sense, the energy and other resources used to produce a particular tradable good can be thought of as being "exported" to the consuming country.

<sup>12</sup> Acceptance of Consumption-Based Climate Policy Instruments and Implementation Challenges Crawford-Brown, D. et al., Carbon-CAP Policy Brief 2, 2016, <http://www.ictsd.org/themes/climate-and-energy/research/carbon-cap-policy-brief-2-acceptance-of-consumptionbased-climate> (Crawford-Brown et al. 2016).

A variety of business models are being tested already: promoting circular supply-chains; recovering useful resources or energy out of disposed products or by-products; extending working life cycle of products and components; sharing production platforms to enable increased utilization rate of products; treating product as a service; deploying reverse logistics through re-upcycling, remanufacturing, repair and upgrade. All these models connect well with the benefits of trade. They are also aligned with GVCs frameworks.<sup>13</sup>

## Managing the co-benefits

In a world where trade is in activities rather than in finished goods, and organized around GVCs rather than factor endowments, developing countries are essentially exporting labour itself rather than the product of labour. *Offshoring* is akin to "shadow migration".<sup>14</sup>

GVCs help combine advanced technology and knowhow with low-wage labour abroad, serving as "pipelines" for knowledge flows (Baldwin). This does not detract from the importance of *outsourcing* among developed countries. Indeed, the intensity of such trade exceeds that between developed and developing countries as the gains from specialization driven by companies' excellence are even more important than the gains from specialization due to large wage gaps.

Outsourcing and off-shoring - and especially outsourcing to off-shore locations - can be disruptive for the labour market in more advanced countries and lead to social and political unrest. And whether we are talking about North- South or North-North trade, *valued jobs*, especially green jobs are beginning to matter as much, if not more than, *value added*.

With the development agenda becoming an increasingly important component of climate change mitigation, the scope for *mutual supportiveness* or, to put it in the IPCC parlance, *complimentary benefits*, or *co-benefits* is bound to increase.<sup>15</sup> Policies with multiple benefits - *co-benefits* - including social outcomes can be an effective way to muster support for climate policies and achieve greater levels of ambition.

Renewable energy is one case in point. An area of extraordinary rapid change, which is accompanied by a lot of instability and jockeying for positions, it is also a new market that is profoundly shaped by government intervention, which can take place through *push* or *pull* type of policies. The latter type, e.g. subsidies to consumers, feed-in-tariffs and mandates for biofuels are clearly an indication that *market creation* is taking place.

Creating markets for renewable energy is a very expensive proposition. And while deploying renewable energy technologies, governments try to make certain that a lot of co-benefits have been tallied in. Indirect, but politically expedient objectives such as *green jobs* may present a more attractive platform for promoting renewable energy than climate change mitigation. Indeed, a number of countries have deployed special policies and measures arguing that the politics of accommodating the higher cost of renewable energy demand a clear-cut avenue towards job creation.

For countries seeking to jump-start employment, energy-based local content requirements (LCRs) are particularly attractive. LCRs are an ancient protective device with two simple but powerful appeals: create jobs at home rather than abroad and channel business to home firms rather than foreign firms. Historically, LCRs

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<sup>13</sup> Scaling up Climate Action through Value Chain Mobilization, World Economic Forum, 2016: EMF (2017) Achieving Growth Within. Available at: <https://www.ellenmacarthurfoundation.org/publications/achieving-growth-within>; Delivering Upon the Potential of a Circular Economy in International Trade, UNCTAD Policy Brief, *in progress*.

<sup>14</sup> Offshoring: General Equilibrium Effects on Wages, Production and Trade, Richard Baldwin and Frédéric Robert-Nicoud, Graduate Institute, Geneva; London School of Economics, April 2008.

<sup>15</sup> Examples of such co-benefits include economic growth and development, poverty reduction, and improved air quality, health, energy security, job creation, biological diversity and water management.

have been associated primarily with government procurement and mandates imposed on publicly funded projects.

Localizing an increasing share of value-added along a supply chain is an important part of economic diversification. Indeed, a main preoccupation of many governments is how to acquire as big a part of international value-added as possible along GVCs. This is a basic developmental challenge and is not only about the share of value-added in any given supply chain. It is also about the quality of participation in terms of the capacity and opportunity to diversify into other activities.<sup>16</sup>

The problem with LCRs, of course, is that the trade rules treat them as undesirable and, depending on circumstances, illegal.<sup>17</sup> And once countries run into problems with LCRs, they fall back on *trade remedies* - *anti-dumping* and *countervailing duties* and *safeguards* - and other types of border measures, which have the "advantage" of being more transparent.

LCRs and trade remedies are the kind of policy instruments that exert direct influence on value chains. By creating barriers to supply chain optimization, they increase the (retail) price of solar and wind electricity, which may in turn reduce the demand for renewable energy to the detriment of the environment. This puts these measures at cross purposes with national and international climate policies and could undermine the credibility of government commitments to address climate change in the UNFCCC.

The political economy is more complicated though. The great majority of renewable energy technologies are, in fact, subsidized and it must be recognized that public support for spending taxpayer money would be weakened in the absence of trade-related measures. And while one can argue that a given amount of environmental expenditure would go further in the absence of these measures, it is not clear that the amount of public support would remain at the same level.<sup>18</sup>

Attempts by governments to turn green growth into a competition over jobs have translated into a wave of trade disputes between governments in the area of renewable energy. In these disputes, governments have either challenged the *subsidies* that others pour into their renewable energy industries to promote them - many of which have to do with the imposition of *LCRs*, or the *trade remedies* that they apply at their border to green imports, to protect the competing domestic industries.

The work being done on GVCs provides an opportunity to combat the idea that any one country could, in today's world, monopolize green jobs using LCRs. For instance, much of the material used in the production of silicon modules, labelled as *Made in the US* is sourced from elsewhere: the glass, the encapsulant, the backsheet, and the junction boxes that go into these modules are sourced from China, Japan and Europe. Another example is the PV cells that are labelled as *Made in China*: much of the equipment used to manufacture them is imported from Germany, Switzerland and the US.

The use of trade defense measures may lead to peculiar situations as countries realize that some of the imports they seek to control are composed of their very own exports, or that they are importing in order to export. While competing over green jobs, policy makers tend to exclusively focus on manufacturing, ignoring the many job-generating services that accompany manufacturing activity. Many of these services are not born of an export strategy, but of a domestic deployment of renewable energy. In other words, were policy makers to focus on spreading the use of green goods in their countries, many accompanying job-generating services would be born as the jobs mostly come from installation, maintenance and repair.

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<sup>16</sup> Local Content Requirements and the Green Economy, UNCTAD, 2014.

<sup>17</sup> LCRs are often deployed along with different kinds of discriminatory treatment, e.g. linking these requirements to subsidies or a taxation structure.

<sup>18</sup> Trade Remedies: Targeting the Renewable Energy Sector, UNCTAD, 2014.

Going into these details helps demystify another aspect: there is a difference between *Made in ...* and *Made by...* In China's solar industry far fewer jobs are generated than is generally thought because China serves as the assembly point of various imported components. Similarly, because of the very limited deployment of solar energy in China, and with 90 percent of all Chinese solar energy products being destined for export, the job-generating services were never born.

While some packaging of trade and social policy may be necessary, attempts to "on-shore" jobs are fraught with risks and may be futile in the longer run. The winners and losers are no longer grouped by sectors and skill groups. Climate, trade and industrial policies all need to be more nuanced and focus on *workers* and *communities* rather than particular *jobs* and *sectors*. This is important to keep in mind as more active policy responses are now under consideration in many countries, and industrial policies make a welcome return to their toolbox and reclaiming policy space from trade agreements is suddenly turning into reality.

## Managing cooperation

It is increasingly difficult to capture the links - and draw conclusions - about the relationship between response measures and international trade; to assess the effects of - and to assign the responsibility for - any particular measure as value chains mean chain reaction; to design a purely national economic, climate or trade policy as we have seen in the recent crises.

We are unlikely to see purely green policies, focusing directly on the deployment of low carbon technologies and obviating the need for economic or employment rationale. Policies with multiple benefits hold a greater promise, but provide a mixed opportunity. On the one hand, they engage governments in activities that they might not have undertaken on account of climate change only. On the other, they make policy design and implementation more difficult. In the second-best world of low-carbon growth, what matters is whether the global supply of climate-friendly technologies expands or shrinks.<sup>19</sup>

It is within GVCs that countries will be looking for and finding various routes for economic diversification and social upgrading. GVCs will also serve as transmitters of resource and environmental costs. Jobs will increasingly be associated with particular tasks and tasks are reallocated across nations - *offshoring* - and across firms - *outsourcing*.

In the last twenty years or so, a rapid expansion of value chains in China and the US has largely been responsible for changing patterns of international production. These forces are less strong now, which accounts for some decline in GVC trade in recent years.<sup>20</sup>

The potential for further specialization and fragmentation of production remains very significant for many developing countries.<sup>21</sup> Much will depend on how well regions such as South Asia, Africa, and South America manage to increase their participation in GVCs. This will in turn depend on the extent to which international trade in services will expand in the years to come. It will also depend on whether or not governments will be able to refrain from *protectionism*.

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<sup>19</sup> Rodrik, Dani, *Green Industrial Policy*, Oxford University Press, 2015.

<sup>20</sup> Marcel Timmer, Bart Los, Robert Stehrer, Gaaitzen De Vries, *Production fragmentation and the global trade slowdown*, CEPR's Policy Portal, 21 November 2016; Cristina Constantinescu, Aaditya Mattoo, Michele Ruta, *Explaining the global trade slowdown*, CEPR's Policy Portal, 18 January 2015.

<sup>21</sup> In the last few years the share of GVC in gross world trade has returned to the levels that prevailed before the Great Trade Collapse. See Baldwin (2016) and Los et al. (2015). Boz et al. (2014) conclude that GVC trade cannot be an important driver of the recent slowdown in trade and that regional demand factors explain at least half of the slowdown.

The internationally joined-up nature of GVCs means that the impact of an upstream policy applied by one country on the value chain will multiply as goods and services cross successive jurisdictions downstream. Companies and governments need to take account of the likely steps that will be considered by others, including businesses involved in value chains, as a follow-up to any policy or measure.

A key issue in *greening* GVCs is how to create jobs and, once they have been created, how to protect them and keep them from going offshore. This mindset can, unfortunately, lead to competition that is, first, not at all about the environment or climate change, but about jobs; second, to competition that can end up defeating the environmental goal by leading to green products being manufactured where it is least efficient to do so; and third, to competition that results in the creation of economic and trade distortions that reduce global welfare.

Managing the *co-benefits* may require a more strategic approach that has combined elements of protectionism and liberalization in order to balance the positive and negative aspects of both strategies. Adopting this approach is not about favouring blanket protection and picking winners; rather, it is about combining liberalization, protection and government's support in varying degrees, depending on a country's resource base, emission profile and level of development. It is a process of *discovery* and whereby businesses and governments assess the *pros* and *cons* of new markets and technologies, learn to deal with externalities such as climate change, and promote diversification and value-addition.

The politics have yet to catch up as policy strives to master the implications of GVCs. The best way to support low carbon neutral growth is to legislate and enforce green growth mandates within one's very own country, because it is these mandates that will generate jobs and trade anyway. The environmental - climate - goal has to be the starting point. Trade policy can no longer be reduced in practice to assigning the responsibility and deciding who should be protected against whom. And trade wars are no way to elicit co-operation needed in an era of GVCs.

Every international agency dealing with economic affairs as well as many governments are working on the various aspects of GVCs in order to understand better their economic, social and environmental dimensions. In the UNFCCC, country submissions have noted that fostering economic diversity is a matter of concern for a number of existing agencies and organizations outside of the UNFCCC process, and it was argued that the UNFCCC process on its own would not be able to make significant progress in this area.<sup>22</sup>

At COP 22, UNCTAD along with UNDP and ILO was invited to accompany the technical expert group meeting conducted under the Forum on Response Measures.<sup>23</sup> This is an important first step in acknowledging the relevance of trade expertise to the work of the Forum, which is implicit in the title of the Forum itself. After all, in the absence of trade, *response measures* would not have even existed. And most of the policies to be discussed in the Forum have a trade angle.

Response measures are increasingly seen as a form of international cooperation with respect to both *economic diversification* and a *just transition of the workforce*.<sup>24</sup> Trade is traditionally seen through the lens of a competitive relationship, but it has an enormous cooperation potential, too. The challenge is to change the approach from one of *allocating or shifting burdens* among countries through trade restrictive measures, to figuring out ways in which trade could help all countries *share the benefits* of transforming their economies.

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<sup>22</sup> Marcu, Andrei, and Wijnand Stoefs. 2017. *The Role of Response Measures in Ensuring the Sustainable Transition to a Low-GHG Economy*. Geneva: International Centre for Trade and Sustainable Development (ICTSD).

<sup>23</sup> Improved Forum and Work Programme, Subsidiary Body for Scientific and Technological Advice, Forty-fifth session Marrakech, 7–14 November 2016, FCCC/SB/2016/L.6.

<sup>24</sup> Response measures can be seen as a non-market form of international cooperation, possibly related to Article 6.8 of the Paris Agreement.



