

Rethinking Policy Intervention for the Transition towards Competitive Trade-Led Green Growth

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Abstract

A neo-classical trade-led growth model supported by rapid technological advancement and the WTO regime has been instrumental to achieving higher growth and prosperity during the last few decades. However, it struggles to cope with critical societal challenges such as environmental degradation, inequality, social disharmony and poor quality of life. The green growth approach is gaining momentum to overcome these issues. Since two thirds of world production is traded, trade should be competitive, inclusive and environmentally sustainable in a green growth regime. Through an extensive review of trade and competitiveness theories, alongside the human development and environmental sustainability literature, the paper analyses three trade-offs: sustainability-competitiveness; inclusiveness-sustainability; and inclusiveness-competitiveness. From this analysis a core strategy mix for transition to competitive, trade-led green growth is identified, setting up an agenda for future research into the role of systems of policy instruments/incentives in catalysing this transition.

Resumen

Un modelo neoclásico de impulso al crecimiento a través del comercio que se ha apoyado en rápidos avances tecnológicos y en el régimen de la OMC, ha conducido a un mayor crecimiento y prosperidad a lo largo de las últimas décadas. Sin embargo, tiene problemas para hacer frente a cambios sociales tales como la degradación medioambiental, la desigualdad, la discordia social y una baja calidad de vida. El enfoque del crecimiento ecológico está ganando impulso para afrontar estos problemas. Dado que dos tercios de la producción mundial se comercian, el comercio debería de ser competitivo, inclusivo y medioambientalmente sostenible en un régimen de crecimiento verde. A través de una extensa revisión de las teorías de comercio y competitividad, junto con la literatura sobre desarrollo humano y sostenibilidad ambiental, el trabajo analiza tres equilibrios: sostenibilidad-competitividad; inclusión-sostenibilidad, e inclusión-competitividad. A partir de este análisis se identifica una estrategia para transitar a un crecimiento verde, competitivo, impulsado por el comercio. De esta manera se establece una agenda para la investigación futura sobre el papel de los sistemas de instrumentos de política/incentivos como catalizadores de dicha transición.

Laburpena

Merkataritzaren bidezko hazkundea bultzatu duen eredu neoklasikoak, aurrerapen teknologiko azkarretan eta Munduko Merkataritza Erakundearen eraentzan oinarrituta, hazkunde eta oparotasun handia ekarri du azken hamarkadetan. Baina eredu horrek zailtasunak ditu gizarte aldaketei aurre egiteko, besteak beste ingurumenaren narriadura, desberdintasuna, gizarte gatazkak eta bizitza kalitate txikia. Arazo horiei aurre egiteko, hazkunde ekologikoaren ikuspegia ari da indarra hartzen. Munduko ekoizpenaren bi heren salerosi egiten denez, merkataritzak lehiakorra, inklusiboa eta, ingurumenari dagokionez, iraunkorra izan beharko luke, hazkunde berdearen bidetik. Merkataritza teoriak eta lehiakortasuna aztertu ondoren, eta giza garapenari eta ingurumen iraunkortasunari buruzko literatura ere aintzat hartuta, lanak hiru oreka aztertu nahi ditu: Iraunkortasuna-lehiakortasuna; inklusioa-iraunkortasuna; eta inklusioa-lehiakortasuna. Analisi horretatik abiatuta, hazkunde berde eta lehiakorrerako bidea egiteko estrategia identifikatu da, merkataritzan oinarrituta. Hain zuzen ere, bide horretan laguntzeko politikako tresnen/pizgarrien sistemaren egitekoari buruzko etorkizuneko ikerketarako agenda zehaztu da.

1. Introduction

Within the last three decades, world economies- developed, less developed or least developed- have become well integrated with international trade. In the 1980s most developing countries abandoned import substitution models in favour of export-led growth, which led to rapid global trade integration. Supported by increasing coverage of new information and communication technologies and the WTO regime, a big paradigm shift has been seen in trade flows, technology flows and knowledge flows (Lin & Rosenbaltt, 2012). Despite this paradigm shift, transforming trade on human and environmental terms has emerged as a big policy issue.

Undoubtedly, foreign trade is considered as an engine of economic growth (Lewis, 1980; Riedel, 1984, Thirlwall, 2000). This is supported by empirical studies, many of which demonstrate a strong correlation between trade share and economic growth performance (Edwards, 1992; Sachs & Warner, 1995; Frankel & Romer, 1999; Dollar & Kraay, 2004; Romalis, 2007; Farole, Reis & Wagle, 2010). However, overdependence on commodity exports may lead to jobless growth in the manufacturing sector in the long run (Farole, Reis, & Wagle, 2010). For instance, UNDP (2005) provides an example of export-driven manufacturing output in East Asia where output increased by 180 per cent in the 1990s but the associated employment increased by only three per cent.

Indeed, while the export-led growth model has been seen as successful in graduating many less developed countries in Asia-Pacific, Africa and Latin America towards ‘developed’ status, it is still the case that more than two-thirds of the world’s poor reside in these regions and that number has risen in the first decade of the 21st century (Sumner, 2010). These people are further disadvantaged by some cross-cutting issues such as the global financial crises, climate change and eroding social cohesion. Hence, policy makers are compelled to rethink the hitherto trade-led growth model and explore a new course of production, consumption and trade that takes into account environmental and human development facets.

This new course of action demands not only innovative strategies for trade-led growth but also changes the existing concept of national prosperity. In this direction, an array of recent initiatives on beyond GDP and UN conferences on climate change and human development have recommended new qualitative indicators of national prosperity, and emerging regional growth strategies have started to put these considerations into action. For this purpose, ‘green growth’ is put forward as an operational policy agenda for sustainable development that aggregates these latest initiatives (OECD, 2011; Toman, 2012). While greening all sectors is important, trade sectors play a crucial role for green economy transformation since more than half of world production is traded. In this respect three fundamentals of trade-led green growth – competitiveness, environmental sustainability and inclusiveness – should work together in harmony.

The rationale of this paper is to explore strategic adaptive solutions that move economies towards this balanced approach to trade-led green growth. The novelties of the paper are that: (i) we present an eclectic competitiveness framework, (ii) we put forth the concepts of inclusive sustainability and inclusive competitiveness in the context of trade-led growth, and (iii) we explore some adaptive solutions that help foster competitive trade-led inclusive green growth transition.

The paper is structured in five sections. Following this introduction, in Section 2 we review hitherto trade and competitiveness literatures and present trade competitiveness determinants in an integrated approach. In Section 3 we make an appraisal of recent human development and environmental sustainability initiatives that respond to green growth concerns. We also identify trade-related elements of environmental sustainability and inclusiveness. In Section 4 we deal with debates and synergies among the three fundamentals of trade-led green growth. Accentuating the need for government incentives to catalyse those synergies and weaken trade-offs we conclude in Section 5 by offering some tentative policy recommendations and proposing a ‘system framework’ to support these interventions for further investigation in future work.

2. Trade and competitiveness theories and determinants of trade competitiveness

2.1 Trade theories

Trade theories essentially seek to explain what makes trade competitive, while classical trade theories also relate this to the wealth of nations. Explanations of the nature of national wealth in the classical theories alongside theoretical evolutions around incentivizing factors of production so as to make production more competitive provide the seeds for trade-led green growth, despite its scope and instruments being broader. As a basis for understanding trade-led green growth, it is worthwhile therefore to briefly recount the contributions of key developments in trade theory.

From 16th to 18th century, Mercantilist trade theory and practice in Europe advocated for imposing import barriers and subsidising exports. As such, foreign trade was seen as a zero sum game (Smit, 2010), and working labour force (that makes bigger markets and armies) and accumulation of precious metals were the measures of national prosperity (Ekelund & Hébert, 1997). On the contrary, the Physiocracy doctrine that developed in the 18th century considered land and the productive agricultural workforce as the sole source of value (Thweatt, 1976), putting emphasis on the fertility of land and nature, and implicitly emphasizing the environment and people as the real wealth of nations.

Trade theory got a logical frame with the publication of *The Wealth of Nations* by Adam Smith in 1776. He criticized the static view of wealth in Mercantilism and argued that international trade increases the level of productivity within a country, thus contributing to increases in world output (Toft, 2008). Adam Smith’s absolute advantage theory argued that the gains from free trade resulted from absolute advantage in which each state benefits if it specializes in the goods it

produces best and trades those with others (Cohn, 2000). Advantage can be understood as the efficient use of resources. This theory measures the nation's wealth by the living standards of its people, not by gold and silver. Since most of the income goes to labour, higher exports enhance the welfare of the nation. Resource efficiency and quality of life are also the essential components of the green growth framework that we elaborate later.

The relative productivity of factors of production, as explained by the Ricardian law of comparative advantage, determines the pattern of trade between trading partners. As briefed by Deardorff (2007) this model describes a world in which goods are competitively produced from a single factor of production – labour – using constant-returns-to-scale technologies that differ across countries and goods. As this model explains, gains from trade are enhanced by either increasing real income through higher production with the existing total resources or by reducing the real cost of goods at the existing level with lesser physical input of labour. Implicitly, resource efficiency produces a gain that is also the essence of green growth.

A critical improvement of Ricardian theory emerged in the Heckscher-Ohlin theory that explains a country's trade in terms of its factor endowments of labour and capital. In this theory a country can enjoy a comparative advantage in the exports of products in which its most abundant factor is used relatively intensively. Hence, country specific differences in factor endowments – not productivity – determine the pattern of trade. It thus concludes that 'trade can potentially make everyone better off compared to autarky despite strong distributional effects on factor owners' (Mikić, 1998, pp. 117-18). Neo-factor theories have included new factors of production such as human capital and natural resources in the factor proportion model (H-O model). Availability and access to resources and focus on human capital are major considerations for the green growth agenda too.

Theoretical developments during the late 1970s and 1980s deviated from the classical assumptions of production functions and competition, adding a new 'economic geography' dimension. To explain intra-industry trade, economists like Krugman, Lancaster and Helpman relaxed the classical assumptions of perfect competition and constant returns to scale and proposed a new set of trade theories that assume increasing returns to scale and monopolistic or oligopolistic competition. These 'new trade theories (NTTs)' opened up the debate around government intervention as an active policy to advance the international competitiveness of a country' (Smit, 2010, p.111). They are based on imperfect markets and competitive advantage related to learning economies, technological innovation and dynamic scale economies as the source of specialization (Krugman, 1987; Hämmäläinen, 2003). Moreover, they recognize government policy incentives for export competitiveness and the relationship with place-based wealth, providing an important input into the green growth debate.

2.2 Competitiveness theories and the determinants of competitiveness

The basic tenet of these trade theories is that production should be competitive to gain from foreign trade. On the one hand, this depends on the availability of factors of production and their intensity, efficiency and productivity; on the other hand, policy incentives can discourage or encourage their movement across borders. However, trade theories do not explain what makes trade competitive. In this regard, managerial theories may better help to explain the determinants of competitiveness at micro as well as macro levels.

Competitiveness theories are considered as managerial theories but share many common features with trade theories. Competitiveness is often linked with factor productivity, degree of innovation, export sophistication and capital intensity in production, a few strategic aspects of firms as well as some macroeconomic policies. Analysis of the determinants of territorial competitiveness has been heavily influenced by Porter's (1990) diamond model of national competitiveness. The four edges of the diamond are: (a) firm's strategy, structure and rivalry; (b) factor conditions; (c) demand conditions; and (d) related and supporting industries. Porter's diamond works as a system where the effect of one point depends on the others in a self-reinforcing system. However, Porter's framework is based on the unifying premise that the only meaningful concept of competitiveness at the national level is productivity, in particular the capacity of companies to achieve high levels of productivity and to increase this over time (Aranguren and Wilson, 2010; Wilson, 2008). Indeed, the World Economic Forum defines competitiveness as the set of institutions, policies, and factors that determine the level of productivity of a country (WEF, 2012). The Forum's *Global Competitiveness Report 2012-2013* considers competitiveness as the fundamental determinant of productivity, which ultimately influences national prosperity and economic growth.

Rugman (1992) identified a problem in Porter's diamond model with regard to multinational activity and the role of government. Rugman and D'Cruz (1993), with Canadian experience, claimed that 'Porter's home-base diamond model of international competitiveness is seriously flawed when applied to a small, open, trading economy' (p. 17). Adapting the model, they developed a double diamond model in the context of Canada. This suggests that 'managers built upon both the domestic and foreign diamond to become globally competitive in terms of survival, profitability and growth' (p. 136). Rugman, Moon and Verbake (1998) expanded this further to a generalized double diamond model so that it becomes applicable for analysing the competitiveness of all small economies.

Lall (1999), in contrast, has put forward a "competitiveness triangle" as a basic analytical framework for dealing with trade competitiveness that has theoretical underpinnings in new trade theories. According to him, 'national competitiveness is not only the sum of the efficiency of individual firms in a country, but also the synergy and externalities generated by the learning process' (p. 20). This learning process is particularly important for firms to increase their product

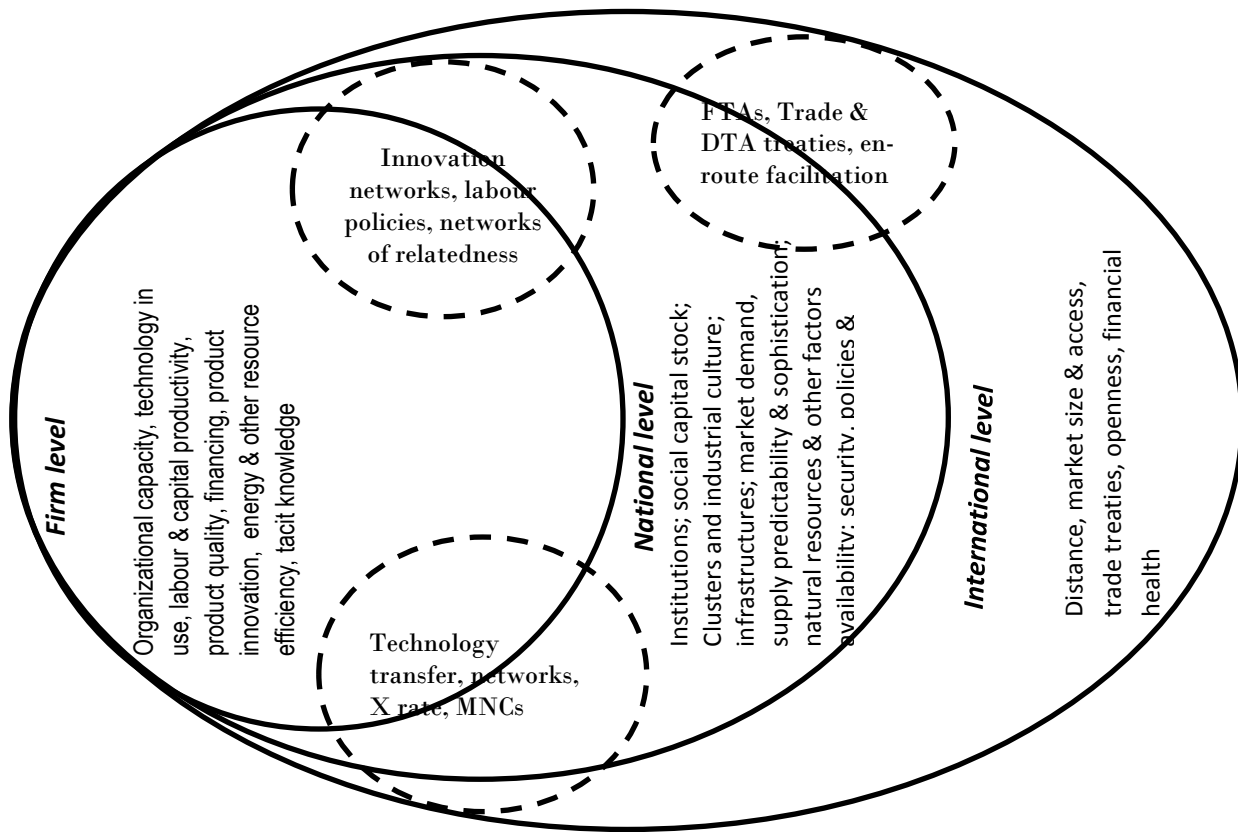
competitiveness in developing countries where competitiveness is determined by incentives, factors and institutions, and entrepreneurial skills to absorb them.

Also building on Porter's diamond, Hämmäläinen (2003) developed a system framework on the basis of deductive analysis. The system consists of a *techno-economic* or *productive* core (productive resources, technologies, organizational efficiency, product market efficiencies and external business activities) that is embedded in the broader socio-institutional environment of 'framework conditions'. Framework conditions consist of government policies and activities as well as the formal and informal institutions that are the most important for competitiveness and growth (North, 1990; cited in Hämmäläinen, 2003). It is the framework conditions that create the techno-economic core, within which external business activities also influence the system's other components – resources, technologies, product market arrangements and organizational arrangements – and even the institutional framework through government policies.

Other determinants of competitiveness, as revealed by some empirical analyses are: endowment of physical and human capital, labour, natural resources and the overall quality of its institutions that determine the relative cost and patterns of specialization (Hausmann, Hwang & Rodrik, 2007); resource reallocation to more productive and higher quality products of exporting firms (Sakho & Welkenhorst, 2008); product sophistication and network of relatedness (Hidalgo, Klinger, Barabasi, and Hausmann, 2007); level or volume/share of exports, diversification of exports and, export quality or sophistication (Farole, Reis, & Wagle, 2010); logistics, quality of institutions, innovation, and supportive trade policy (Cusolito, 2010); and institutions, infrastructures, macroeconomic environment, health, education and training, goods market efficiency, labour market efficiency, financial market development, technological readiness, market size, business sophistication, and innovation (WEF, 2012).

This brief summary of trade and competitiveness theories leads us to the conclusion that we cannot isolate national competitiveness from enterprise/industrial competitiveness. National competitiveness as such is the aggregated and synergic effect of determinants at various levels - firms/industries, regional, national and international - and some interconnected or overlapping determinants. It is the synergy of: technology and its diffusion; resource productivity; institutions and policies (of government and enterprise); international relations, networks and cooperation; market forces; infrastructures; and even cultural and social values. In Figure 1 we present a synthesis of determinants of competitiveness extracted from this analysis of trade and competitiveness theories.

Figure 1: Determinants of export competitiveness at various levels



Concept: Own elaboration

3. Environmental sustainability and inclusiveness as real wealth

3.1 The roots of sustainable development and Beyond GDP

Neoclassical trade-led growth models ignored human and environmental factors in economic development processes. From the late 1980s, however, the sustainable development concept has started to flourish, placing a high emphasis on environmental protection and quality of life along with the economic dimension of development. Efforts have hence been made to include qualitative measures in national prosperity accounting, and the gradual evolution of sustainable development thinking has ultimately produced the green growth concept as the strategic course of action. Green growth demands paradigm shifts in each of the contributors to national income accounts — production, consumption, investment, and foreign trade.

The roots of sustainable development can be traced back to the UN conference on Human Environment (Stockholm Declaration 1972) that recognized 'human environment' as the benefactor of physical, intellectual, moral, social and spiritual growth opportunities and proclaimed the urgency of protection and improvement of the human environment for the well-being of people and economic development throughout the world (UNEP, 1972). This

Declaration acknowledged the urgency of correcting environmental degradation in the human environment that is caused by human beings and stressed that when exploiting natural resources, countries should not damage the environment beyond their sovereign boundaries.

In 1987, the Brundtland Commission Report was produced as a milestone in sustainable development. It deals with six major challenges: population; food security; ecosystem; energy; industry; and urban challenges. The report suggests the need to correct failures reflected in the existence of poverty and a short-sighted way of attaining prosperity. As such, sustainable development needs a participatory democratic political system, an economic system capable of generating surpluses and technical knowledge on a self-reliant sustained basis, a social system capable of maintaining social harmony, a production system that highly values and preserves the ecological base for development, a technological system continuously finding new solutions, a flexible and self-correcting administrative system, and an international system that fosters sustainable patterns of trade and finance (UN, 1987).

In essence, participative democracy, social cohesion, ecological consideration in production, and a technology-savvy economic system were internal systems to be revitalized, whereas reframing the international system was prescribed in this report for sustainable trade and finance. The report suggested that reconciliation of rapid export growth and conservation of the resource base in less and least developed countries is possible if they enjoy access to industrial countries' markets for non-traditional exports where they enjoy a comparative advantage.

On the basis that markets and economic growth are just means and human development is the ultimate end, various facets of human development have been explored in Human Development Reports (HDR) since 1990. In the first HDR, human development is defined as 'a process of enlarging people's choice' (UNDP, 1990), whereby sustainable development strategies should meet the needs of the present generation without compromising the ability of future generation to meet their needs. Economic growth and markets are just means and human development is the end. The main message of the report is that GDP growth is necessary to meet essential human objectives, but equally important is 'to study how this growth translates - or fails to translate - into human development since people are the real wealth' (UNDP, 1990, p. 42), a message that was reinforced twenty years later in the HDR 2010.

Enlarging people's choices is the basic objective of human development which can be achieved by: (i) equality of opportunity for all people in society; (ii) sustainability of such opportunities from one generation to the next, and; (iii) empowerment of people so that they participate in and benefit from development process; in another terms, through inclusive development (UNDP, 1995). Otherwise, economic growth may turn out to be *jobless, voiceless, ruthless, rootless and futureless* and detrimental for human development (UNDP, 1996). To avoid such lopsided economic growth and achieve inclusive development, bridging the technology divide, fostering politico-cultural aspects such as human rights and democracy, attaining of MDGs, ensuring

cultural liberty, reducing inequality, freedom of mobility, and access to livelihood resources have all been argued as crucial (UNDP, 2000, 2001, 2002, 2003, 2004, 2005, 2009).

From an environmental perspective, the 'poorest countries and most vulnerable citizens will suffer earlier with highly damaging setbacks though they have contributed least for environmental degradation' (UNDP, 2008, p. 3) because they 'depend directly on ecosystems for their livelihoods, their economic, social and physical well-being, and their cultural heritage' (UN/UNCSD, 2012, p. 5). For this reason, it is essential to generate decent jobs and incomes that decrease disparity in the standard of living in order to better meet people's need and promote sustainable livelihoods and practices, and, for the sustainable use of natural resources and ecosystems (UNCSD, 2012).

Some beyond GDP initiatives also stress that human development and environmental aspects should be incorporated into national prosperity measurement. 'Beyond GDP' covers environmental and social aspects of wellbeing that are not accounted for by GDP measures. Initiatives generally recognize GDP as the 'best single measure to explain how market economy is performing' but point out its inability to accurately measure long-run economic and social progress and tackle contemporary issues regarding climate change, social inclusion, resource efficiency etc.. The Stiglitz-Sen-Fitoussi Commission was created in 2008 with an aim to identify the limits of GDP as an indicator of economic performance and social progress. The Commission's report proposes a balance sheet of an economy that should be constructed in such a way that it incorporates assets (capital- physical, human, social and natural) and liabilities (owed to other countries) (Stiglitz, Sen, & Fitoussi, 2009). It also recommends a set of measures to incorporate 'quality of life' and 'sustainable development and environment'. Similarly, the EU's new strategy, Europe 2020, has unveiled three mutually reinforcing priorities - 'smart, sustainable and inclusive growth' and introduced seven flagship initiatives in the areas of innovation, resource efficiency, skill and jobs, digital agenda, youth, industrial policy and fight against poverty.

3.2 Green growth as a strategy of sustainable development

HDRs, beyond GDP initiatives, and UN conferences on environment have paved the way to include environmental and human development dimensions in national prosperity measurement, clarifying their importance for a balanced and sustainable development. In this context, green growth has been emerged as a strategy to attain the goal of sustainable development. Green growth entails the operational policy agenda of sustainable development that can help achieve concrete and measurable progress with respect to the economy, the environment and people. It strongly emphasizes fostering the necessary conditions for innovation, investment and competition which stimulate economic growth without derailing resilient ecosystems (OECD, 2011). Indeed, the UN's Rio+20 conference recognized the green economy in sustainable development and poverty eradication as one of the most important tools available for achieving sustainable development (UN, 2012, paragraph 56; Bina, 2013).

For a greening of the economy, environmental considerations are crucial in growth processes. DARA and Climate Vulnerable Forum (2012) foresee the precarious scenario resulting from the climate change and estimate that:

- Climate change and a carbon-intensive economy is the leading cause of 5 million deaths every year.
- Neglect of climate change has already cost the global economy 1.6 per cent (1.2 trillion USD) forgone GDP every year.
- Increasing global temperature and carbon related pollution will cost 3.2 per cent global GDP loss by 2030 if urgent action is not taken. Least developed countries will lose their GDP by 11 per cent on average over that period
- Economic losses will shrink the expenses of tackling climate change - to just 0.5 per cent of GDP in next decade.
- Major hits of climate change are upon big economies by value but life in less developed countries is highly threatened where 1.3 billion people are fighting against extreme poverty.

The green economy is also considered as a central route towards poverty alleviation. It can create jobs and enhance social equity through the greening of agriculture, investment in water and sanitation services, eco-tourism and new green sectors. An ILO report estimates that 'the transformation to a greener economy, if accompanied by the right policy mix, could generate 15 to 60 million additional jobs globally over the next two decades and lift tens of millions of workers out of poverty and promotes social inclusion (ILO, 2012). Additionally, the green economy substitutes renewable energy and low carbon technologies for fossil fuels. It also promotes resource and energy efficiency. Lastly, the green economy initiative revitalizes the economy by addressing externality-created market failures, by eliminating environmentally harmful subsidies, through market-based incentives and regulatory frameworks and through stimulating investment and green public procurement (UNEP, 2011).

3.3 Foreign trade in green economy and trade-related elements of sustainability and inclusiveness

Trade can play a vital role in the transition towards a green economy. The Rio +20 conference reaffirmed that it is an engine for development and sustained growth (UN, 2012); and a report by UNEP, ITC and ICTSD claims that well-managed trade has the potential to drive this transition by fostering sustainable resource use, generating economic and employment opportunities, and contributing to poverty eradication (2012, p. 1). Indeed, trade can influence technological change and subsequent changes in growth trajectories. With this growth trajectory perspective, developed countries benefit from green technology related exports whereas less and least developed countries have a strong comparative advantage in green agro-products due to biodiversity and other favourable conditions (Swanson & Ziegelhöfer, 2011). Biodiversity products, green energy, and the services sector are the traded sectors with the most potential to foster green growth (ibid.).

Trade also has human face or inclusiveness dimension. Sustained trade is one element of a larger exchange among people, communities and nations that involves goods and services, cultures and information as well as the natural environment. Each community has its own cultures, values, social systems and attitude towards the environment, and seeks to maintain its own set of values (Costanza, et al., 1995; Sugden and Wilson, 2002). Fair and sustainable trade depends on a proper system of governance with global consensus-building, effective participation of citizens, interest groups and other stakeholders (Cowling and Sugden, 1998).

For trade-led inclusive growth, the most efficient form of participation is through the market i.e., access to productive and remunerative employment (UNDP, 1993). As human capability and productivity determine the nature of production and its competitive strength, justness of distribution of trade gains makes it inclusive. To cope with jobless growth, HDR 1993 suggests investing in education, skills and training, liberating private enterprises, supporting small scale enterprises and informal employment, creating an efficient economy, encouraging labour-intensive technology, and extending employment safety nets through labour-intensive public works. Adapting from the concept of inclusive growth, foci given by HDRs, Beyond GDP initiatives and new growth strategies, elements of trade-inclusiveness can be synthesized in six broad groups:

- (i) Economic dimension: (a) reduction in income inequality and poverty, (b) family business and SMEs
- (ii) Democracy, participation and empowerment dimension: (a) democratizing policies and ensuring stakeholder's voice (b) participation: gender and equity (iii) empowerment (safety nets, opportunities of choice and rights (patent rights and right to resources)).
- (iii) Access dimension: (a) modern technology (b) investment fund and, (iii) market at the base of the pyramid.
- (iv) Ethno-cultural dimension: (a) local knowledge and technology (b) cultural protection (c) ethnic business.
- (v) Human capability and productivity dimension: (a) health and education (b) consumer-led innovation, (c) skills and training.
- (vi) Employment dimension: (a) wage premium/ productive employment, (b) decent jobs.

In the sustainability dimension, international trade is visibly interrelated with the environment. The influences between trade and environment can be analysed in two strands: (i) how trade affects environment and; (ii) how environment affects trade. Trade affects environment both directly and indirectly.

Direct trade-environment linkages can be established in three ways: firstly, trade requires international transport which itself pollutes the environment; secondly, trade alters the profitability of harvesting natural resources; and thirdly, trade affects a country's ecology as invasive species and the spreading of disease are directly related to international trade. Similarly, environmental externalities are reallocated by trade among countries, and environment

regulations employed to check such externalities, in many cases, may seriously affect the net gains from trade.

Indirectly, trade meets the environment through by-product negative externalities of production, since close to half of world production is traded. The strength of such externalities are determined by scale of activity, income per capita, environmental policies, composition effects related to the pattern of specialization, and technique effects. On the one hand, scale effects lead to the deterioration of the quality of the environment. On the other, trade helps accelerate the adoption of clean techniques of production (de Melo, 2012).

By extracting from HDRs, UNEP literature and Rio conference documents, trade-related elements of sustainability can be broadly categorized into two groups: (i) trade growth sustainability; and (ii) environmental sustainability. Market diversification, upgrading in the value-chain, export-base diversification, and increasing domestic added-value of exports are the main elements of the former, whereas Greenhouse Gases and waste reduction, minimising use of forest, land and water, respect for the rights of local communities, investment in equity-enhancing human capital, effective participation of all stakeholders, environmental governance with global consensus, use of clean or green energy and technologies, resource efficiency in production and transportation, protection of biodiversity, promotion of green/organic trade and greening/shortening global value chains (GVCs) are all related to environmental sustainability.

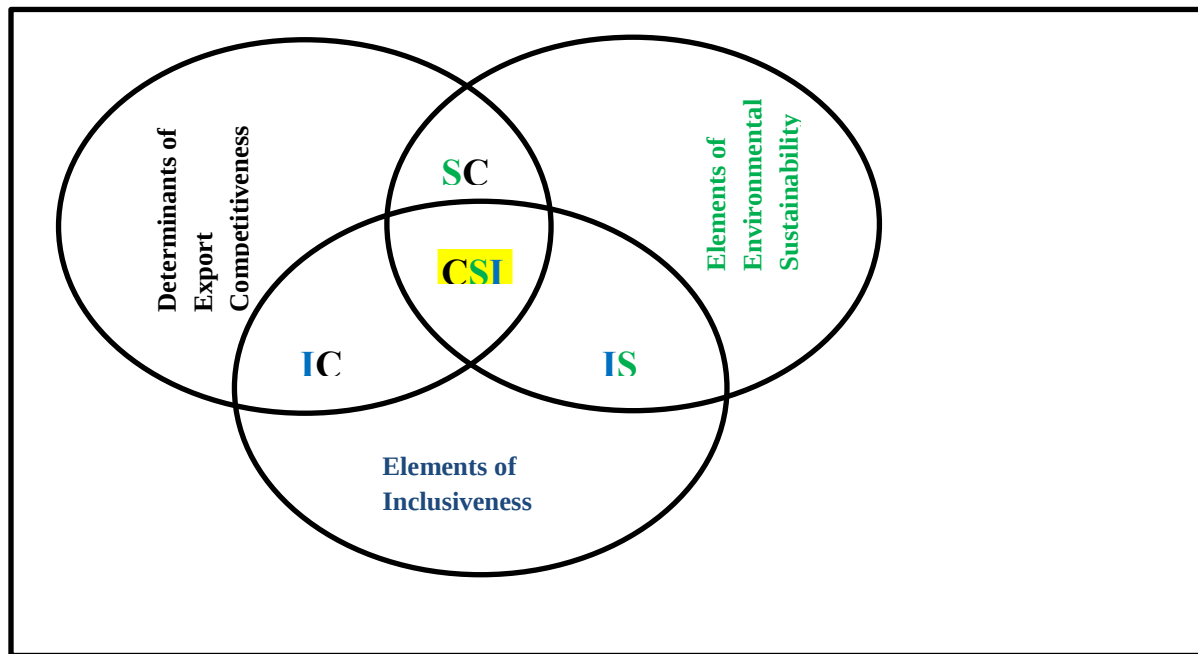
Now, we have trade competitiveness determinants (section 2.2) and trade-related inclusiveness and sustainability elements (section 3.3) at hand. In the next Section we use a Venn diagram approach to find a set of similar, complementary and contradictory elements of each fundamental and try to identify synergies and trade-offs.

4. Putting the determinants together: debates and synergies

4.1 The Venn diagram approach

Is it possible to achieve competitiveness, environmental sustainability and inclusiveness simultaneously through international trade? In many ways these three fundamentals are more contradictory than they are complementary, and a proper recipe that mixes different elements of these fundamentals is needed to attain synergies. To find the synergy areas within a green growth perspective, we use a Venn diagram approach of three fundamentals.

Figure 2: Elements of the fundamentals of trade-led green growth- A Venn diagram approach



Source: Author's own elaboration

The logic behind yoking these three fundamentals is to find the common trade-related attributes in-between and among fundamentals. In the context of this study, 'fundamentals' are the essential factors for each strand of growth; for example, export competitiveness is the 'fundamental' of trade-led growth and, inclusiveness and environmental sustainability are 'fundamentals' of green growth. Each *fundamental* comprises the collective synergies of their determinants/elements, and we seek to find those determinants/elements having attributes that fit into two or more fundamentals and that can therefore be accommodated as *strategic adaptive solutions*. We focus on such overlapping attributes because they have higher policy potential to achieve multiple objectives. "As philosopher John Rawls has argued, policies that represent an overlapping consensus of interest groups are most likely to be fair and effective" (in: Costanza et al., 1995, p. 43).

Abbreviated terms presented in the above diagram are defined as follows:

CSI = Core strategic adaptive solutions which have the attributes of all the fundamentals- competitiveness, sustainability and inclusiveness (competitive-sustainable-inclusive).

IC= Inclusive competitiveness solutions,

SC= Sustainable competitiveness solutions, and

IS= Inclusive sustainability solutions.

Putting mathematically,

Core strategy mix or Core Strategic Adaptive Solutions (CSAS) $\rightarrow C \cap S \cap I$, and

Strategic Adaptive Solutions (SAS) $\rightarrow IC=I \cap C$, $CS=C \cap S$, $IS=I \cap S$

These solutions, upon being catalysed by policy instruments, are expected eventually to lead an economy towards a competitive trade-led green growth transition. Adaptive strategic solutions are not a universal panacea, but context-specific supporting mechanisms for competitive green growth. A broad range of strategies is needed to apply these solutions in practice and it is therefore a complex, dynamic policy process requiring continuous learning.

4.2 Trade-offs to synergies between fundamentals

Despite the complementarity, positive synergies and mutual relatedness among the determinants/elements of these three fundamentals, trade theorists and environmental economists have contesting views. From an extensive review of literature we find some synergies that we classify under sustainable competitiveness, inclusive competitiveness and inclusive sustainability.

Sustainability-competitiveness trade-offs and synergies for sustainable competitiveness (SC)

This debate began in the early 1970s following the publication of D.H. Meadow's book 'Limits to Growth' (Carrillo-Hermosilla, del Rio González & Könnölä, 2009). Later debates bifurcated into two streams – pessimistic and optimistic.

Pessimists consider that there is a trade-off between environmental sustainability and competitiveness. This is based on the pollution haven hypothesis (PHH) and/or compensatory 'beggar thyself' hypothesis. Beggar thyself policies are such policies whose economic costs are mainly borne at home, though they might affect others as well (Rodrik, 2013). Under free trade, according to the PHH, 'multinational firms will relocate the production of their pollution-intensive goods to developing countries, taking advantage of the low environment monitoring in these countries. Over time, developing countries will develop a comparative advantage in pollution-intensive industries and become “havens” for the world’s polluting industries' (Temurshoev, 2006, p. 2).

However, the World Bank (2002) suggests that developing countries harness their comparative advantage in labour-intensive industries whereas developed countries have their comparative advantage in pollution-intensive industries despite their stricter environmental standards. Consequences are that developing countries import more pollution-intensive products but export less-pollution intensive items. If this is the case and PHH also holds, less developed countries are double-disadvantaged by their domestic pollution-intensive firms and foreign firms that are shifted from developed countries as explained by PHH assumption. In this way, based on a static relationship between ecology and economy, neoclassical environmental economists argue that there is a trade-off between environmental performance and competitiveness.

In the optimistic strand there is no trade-off, rather a synergy. Scholars of this stream believe that sticking to environmental standards does not deteriorate competitiveness but enhances it in the

long term. Porter and van der Linde (2008) criticize the trade-off argument as an incorrect notion because it is based on a static view of environmental regulation where only regulations themselves are taken as dynamic. In the real world of dynamic competition, all (competitors, customers and regulators) constantly make efforts in order to find innovative solutions to problems in technology, product, process and customer needs. If the environmental standards are properly designed, innovation can be triggered. Such innovation helps lower the total cost of production or increases the value of the product. Environmental standards-led innovation enhances resource productivity which makes firms more competitive. In this way, the dynamic effect of induced technological progress offsets the negative static effect of environmental regulation. Even if it does not fully offset it, the dynamic effect considerably relaxes the trade-off between environmental regulation and competitiveness (Swanson & Ziegelhöfer, 2011). Better environmental performance leads toward lower production cost and higher competitiveness through efficiency, productivity, first mover advantage, and new market opportunity (Jaffe, Peterson, Portney, & Stavins, 1995; Carrillo-Hermosilla, del Rio González & Könnölä, 2009)

Seeking empirical evidence of PHH, Copeland (2012) argues that there is little or no evidence that highly pollution intensive industries shift their production toward countries having weaker environment policy. He finds no evidence that environmental policy causes an exodus of firms to "pollution havens". Analysing net exports of pollution intensive goods, Cole (2004) also found little evidence of widespread pollution havens. Even if it takes place, it is likely to have been temporary and limited to certain regions or sectors. This positive strand thus supports the possibility of sustainable competitiveness.

By conjugating likely elements of environmental sustainability and competitiveness and putting these into a Venn diagram format (Figure 2), we can find some strategies that contribute to achieve sustainable competitiveness. For example, product innovation is one of the most important determinants of competitiveness and also an element of sustainability. When the innovation is environment-friendly, it inevitably enhances sustainable competitiveness. In this way, investing in human capabilities and incentivising eco-product-innovation, resource efficiency, and cheaper and cleaner energy are the main strategies to promote sustainable competitiveness.

Inclusiveness-sustainability trade-offs and inclusive sustainability (IS)

We define inclusive sustainability as a set of behaviour that develops mitigation and adaptation efforts with an active participation and empowerment of all stakeholders. As such, it: provides people's access to green energy, technology, investment and markets; fosters local knowledge and culture for their prosperity and environmental protection; engages them in innovation for resource efficiency, waste management and green space creation; ensures better health, education, training and skill development opportunities to make them more productive; provides environmental safety and decent jobs; encourages transport cost saving, adoption of 3Rs (reuse, reduce and recycle) and smart consumption; and enhances corporate social responsibility. In a

single sentence, inclusive sustainability is the behavioural capacity to lubricate human-centric growth through participative, empowered and environment-sensitive human resources.

Adapting our definition of inclusive sustainability into trade, synergies may be created by: participative trade and industrial policy making and empowerment, utilisation of local knowledge, culture and technology in product specialisation, industrial safety and decent jobs; access to green energy, investment, technology and markets; and the increasing corporate social responsibility. Inclusive sustainability demands access, opportunity and capabilities of people into foreign trade. For that purpose, skill development and training programmes should be adopted in growing sectors. Similarly, public awareness for environmental friendliness, rewarding employees for ideas that result in better utilization and conservation of all kinds of resources (resource efficiency techniques), and providing incentives and subsidies for recycling, waste management, green industry-cycle and green transport may be some ways to enhance inclusive sustainability.

Generally, the inclusiveness-sustainability trade-off is argued on the ground that imposition of new environmental regulations on trade lead to job losses and deterioration of equity, voice and welfare.

Job losses in business-as-usual versus greening business: It is argued that there will be a big loss of employment if 'business-as-usual' type firms are forced to halt their production due to the lack of adaptive capacity of low skilled labour into the new green production environment. The greening process is a long-term dynamic process in which unskilled labour may be redundant. Contrary to this traditional wisdom, Hueting (1996) argues that a direct shift to environmentally benign activities to attain a certain goal requires more labour. This means green production processes do not reduce employment but rather enhance labour's income. Moreover, environmental protection has grown rapidly to become a major sales-generating and decent job-creating industry. Cole & Elliott (2007) found no evidence of a trade-off between jobs and environmental regulations.

Equity concern versus environmental measures: As Dercon (2012) argues, green growth could bring negative consequences for the poor, particularly due to environmental pricing and regulation as the poor are also consumers. They may also suffer as producers if they do not have sufficient access to the wealth and human capital required to substitute more expensive energy and other natural resources needed in production mechanisms. Additionally, subsidies and/or green domestic investment may crowd-out more pro-poor government spending and other economic assets. In this context, higher technology orientation and capital intensity of green growth may not benefit the poor because they possess only semi-skilled or unskilled labour as the factor of production. However, appropriate technology diffusion strategies in the production sector and targeted social safety nets in the consumption sector may curb this problem.

Voice (participation) versus sustainability: Poor people's survival is based on environmental resources. Therefore, centrally imposed (undemocratic) environmental regulations may jeopardize their voice and rights. Only when people take ownership and feel accountable for the use and preservation of natural resources, it becomes sustainable. As Salkin (2009) claims, local governments that represent the voice of local community are critical to the effective implementation of state climate action plans. People's ownership of locally enforced environmental laws makes the development and integration of local environmental plans and subsequent implementation of local programs easier. Local government encouraged and supported by central government with incentive programs, can strengthen people's voice and accountability towards the environment.

Overall income and welfare losses versus environmental sustainability: If correcting externalities improves welfare and is proved desirable, there would be no trade-off between promoting wellbeing and environment. However we should keep in mind that the costs and benefits of actions are generally distributed unevenly across countries, individuals, and more significantly across generations. As de Serres and Murtin (2011) describe, the welfare impact of a massive reduction of Greenhouse Gas emissions would have two opposite impacts: a reduction in GDP per capita relative to the business-as-usual scenario in the short run; but an improvement in local air quality and associated increase in life expectancy which substantially offsets the welfare losses corresponding to the GDP cost.

We may conclude that although the sustainability inclusiveness trade-off seems inconclusive in many cases, it is clear that job losses due to the paradigm shift towards green economy can be substituted with green jobs if government and companies train their employees to adapt to new production technologies. Additionally, many green exports create additional jobs. A careful relocation of investment into employment intensive green sectors, some targeted social safety nets, facilitating green technology diffusion in the production sector, and democratizing environmental policy can ameliorate the transition. By conjugating inclusiveness and environmental sustainability elements as presented in 3.3 above, synergies for inclusive sustainability may be created by: investment in human capabilities (education, trainings, and re-skilling jobs), greening GVCs, facilitating fair trade, consumer-led innovation, and participative pollution control and waste management.

Inclusiveness-competitiveness trade-offs and inclusive competitiveness (IC)

We define inclusive competitiveness as a state where excluded segments of society that inherit or are capable of certain skills or creative forces have been brought into the mainstream innovation ecosystem, industry clusters or other areas where they can demonstrate their capacity and contribute to competitiveness.

Inclusive competitiveness is a quite new discourse that is related to emerging critique of the entrenched view that only the best talents and highly skilled human forces can make their

production competitive. Yet we believe that every segment of society, irrespective of tribal minorities, gender, ethno-linguistic/cultural group etc., inherits certain creative forces and holds commands on specific knowledge and skills. If such creativity and skills are streamlined into the innovating ecosystem, it may strengthen competitiveness processes in a broader sense than is typically understood (see, for example, Sacchetti and Sugden, 2009). As ICIC and Holifield (2012) state, inclusive competitiveness is the practice of improving the performance of diverse populations within an innovation ecosystem, emerging industry clusters and other areas critical to overall economic competitiveness. Inclusive competitiveness practices neither alter nor replace, but rather complement and enhance market-leading competitiveness strategies, with a focus on connecting diverse populations with opportunities. However, we explored two kinds of trade-offs with regard to inclusive competitiveness: the competitiveness-employment trade-off and the equity-efficiency trade-off.

Competitiveness-employment trade-off: This debate is based on the view that unskilled people cannot foster competitiveness and resulting growth. Chhibber (2011) states, for example, that in the globalization process, as skilled labour are favoured for trade, foreign direct investment and technology upgrading, unskilled workers are marginalized. Such "pick only the skilled" approaches, however, leave behind more people in unemployment and cause higher inequality across income groups and sectors, damaging competitiveness. Rising inequality and jobless growth ultimately causes lack of effective demand, which lowers scale-based competitiveness. Moreover, uneven growth across sectors and locations widens income inequality gaps and accentuates the problem further. Lack of job opportunities and skills, income inequality and unbalanced growth across sectors thus create a vicious cycle that weakens competitiveness and presents a strong argument for greater degrees of inclusiveness.

Equity-efficiency trade-off: This trade-off is linked to the idea that government interventions to raise one of these items may result in decreasing the other. For instance, a social security system that reduces poverty, thus promoting greater equity, may also reduce individual's incentives to work or to save, finally creating inefficiency (Grand, 1990). However, this trade-off may be erased through adequate fiscal policies, such as those described by Blank (2002): (i) providing public assistance to the segment of society that have no capacity to change their behaviour; (ii) transfer giving through a programme combines payments with behavioural mandates and; (iii) investment in human capital (skill, training and reskilling). By positing that greater equality leads to faster growth, the endogenous growth theory also dismisses the trade-off between equity (characteristic of inclusiveness in our context) and efficiency (determinant of competitiveness).

By conjugating likely elements of inclusiveness and competitiveness as presented in 3.3, following strategies may create synergies for inclusive competitiveness: upgrading skills for energy efficiency; promoting social capital and democratizing policies; investment in human capabilities and productivity; supporting "base of the pyramid" market; participative innovation; local knowledge-based product specialization; participative natural resource management;

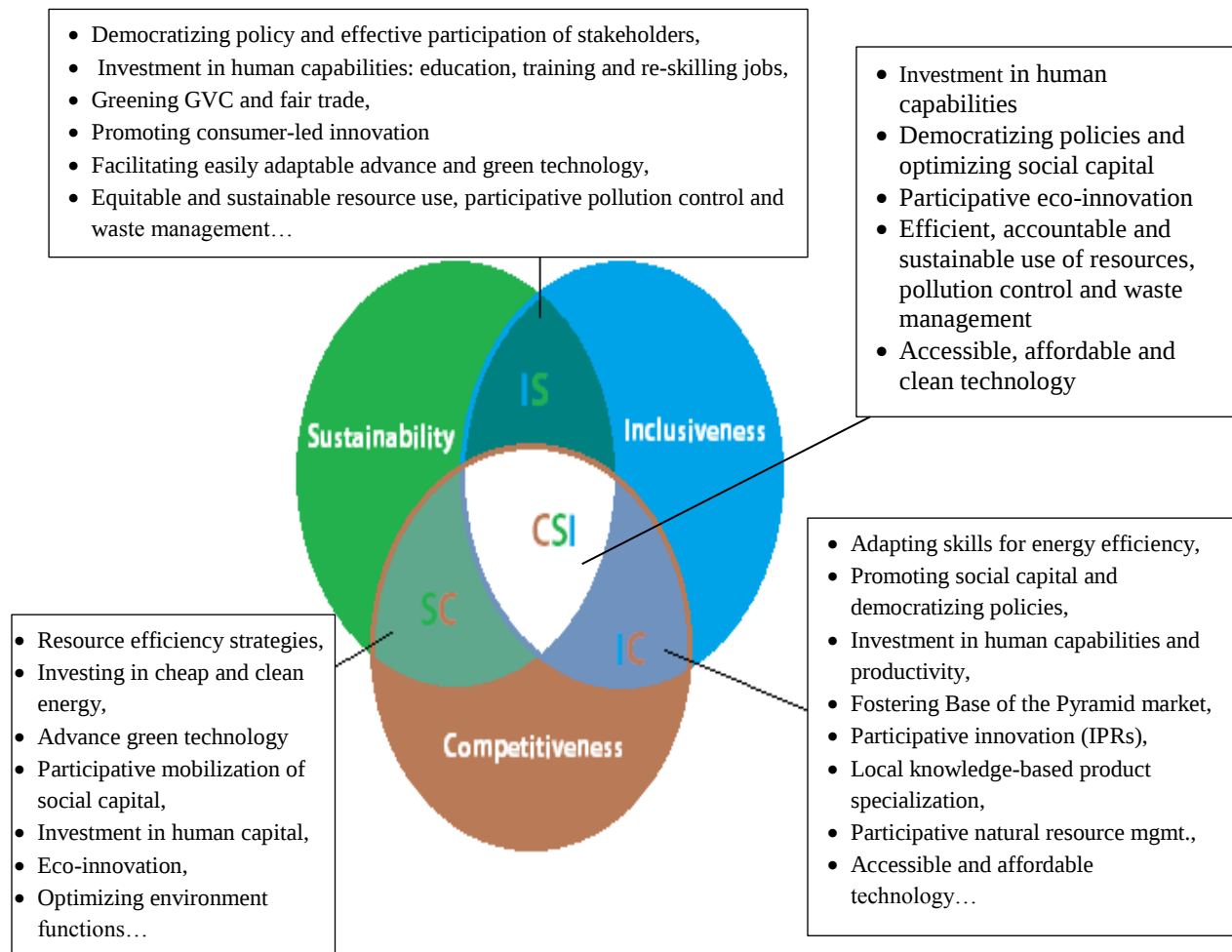
making technology accessible and affordable etc. Debates may be nullified and synergies may be created with some policy incentives such as taxes, subsidies, public procurements and others that help bring competitiveness and inclusiveness (in terms of employment) simultaneously.

4.3 Deriving a set of core strategy mix or CSAS

A core strategy mix can be drawn where all three fundamentals can create synergies (see Figure 3). This is no more than further conjugation of interrelated strategies (identified in previous paragraphs) for sustainable competitiveness, inclusive sustainability and inclusive competitiveness. The strategy-mix or core strategic adaptive solutions (CSAS) $\rightarrow C \cap S \cap I$ are:

Investment in human capabilities; democratizing policies and optimization of social capital; participative eco-innovation; efficient, accountable and sustainable use of resources; pollution control and waste management; and development of accessible, affordable and clean technology.

Figure 3: Core-strategy-mix for transition towards competitive trade-led green growth



Source: Own elaboration

Core strategic adaptive solutions or the core-strategy-mix have complex and multidimensional relationships with other strategies, and their implications for trade competitiveness, sustainability and inclusiveness must be seen in the long run and as part of a system of policies.

5. Conclusion and policy recommendations

The GDP-based economic growth approach is becoming obsolete along with a paradigm shift in national prosperity measurement. Not only economic prosperity but also the quality of human life and the environment are the real wealth of nations. As competitiveness is the main fundamental for trade-led growth, so inclusiveness and environmental sustainability are inevitable fundamentals for sustainable or green growth. The integration of all three of these fundamentals is required, however, to guarantee growth that also contributes to the quality of human life and the environment. For this purpose, green economy policies are taken as strategic

policy options to enhance synergies among the ingredients of competitiveness, sustainability and inclusiveness in the trade sphere. Well institutionalized and policy supported strategic adaptive solutions may lead to a competitive trade-led green growth transition.

To integrate the determinants of trade led green growth, the trade and competitiveness literatures have been extensively reviewed and an eclectic framework proposed. Similarly, elements of inclusiveness and environmental sustainability are abstracted from literature on Beyond GDP initiatives, regional growth strategies, UN initiatives and the UNDP's Human Development Reports. Accommodating those determinants/elements in the trade sphere creates various debates due to their conflicting characteristics, but synergies also prevail that can be catalysed if proper strategies are employed with appropriate policy stimulus.

Such strategies can be broadly categorised in three concepts— (i) sustainable competitiveness, (ii) inclusive sustainability, and (iii) inclusive competitiveness. A common set of strategies (core strategy mix) has been extracted from these three types of strategies. Trade, environment and other interrelated policy instruments should be employed in a coordinated manner to support these strategies. Moving away from the open trade regime is not necessary, but market-based and non-market-based instruments as well as voluntary measures should be carefully designed so that negative externalities that jeopardize human and environmental health can be reduced or removed.

In this sense we suggest that the sustainability-competitiveness trade-off may be more of a fear than the reality. If supported by institutional and structural adjustments, environmental standards promote competitiveness by induced-technology-based higher efficiency, innovation-led resource productivity, skill-based human productivity, new market opportunities, and first-mover advantages. Understanding how best to incentivise clean technology imports and/or inducement, green energy, eco-innovation, R&D, market exploration for green products, and investment in human capabilities with proper trade and environmental policy options is a crucial exercise for policy makers

Analysis of inclusiveness sustainability trade-offs, on the other hand, has identified four main policy implications: (i) the green growth transition may cause job losses in the production and trade sectors in short run, although this can be avoided by investment in education, training and reskilling; (ii) inequality may rise due to environmental pricing and regulations on poor producers/consumers, and government funding may be crowded-out due to higher subsidies and green investment; (iii) environmental externalities, if not corrected in the desired direction, may cause welfare/income loss; and (iv) centrally imposed environmental regulations may hamper policy democratisation. Policy makers should carefully address these issues for a successful green growth transition.

Inclusive competitiveness is the final policy dimension to be addressed. To weaken employment competitiveness trade-off, balanced employment policies are needed across sectors. The main

challenge here revolves around the selection of appropriate fiscal policy instruments to avoid equity-efficiency and employment-competitiveness trade-offs.

Our analysis of these three trade-offs and our preliminary proposal for a set of core strategies that may work in the nexus between competitiveness, sustainability and inclusiveness highlight important challenges for future research. In particular there is a need to deepen analysis around how a core strategy mix would work within a system framework of policies. Case analysis will be an important methodology for taking forward this analysis, as greater understanding is required around how the possibilities identified here might be realistically applied to steer territories towards competitive trade-led green growth.

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