Advancing Green Trade and Employment under Global Uncertainty

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Abstract

This paper examines global trade patterns in green goods towards 2030 amid the current global tension on trade. The article makes use of the international trade flow data (WITS/COMTRADE) in conjunction with the IMF's classification of environmental goods.

In parallel, the paper introduces a structural gravity model of trade, grounded in the theoretical framework developed by Anderson et al. (2016–2019). A scenario analysis is conducted to evaluate the impact of heightened trade tensions on trade flows and employment outcomes. In the simulated scenarios, in which the U.S. increases tariffs on major trading partners—prompting retaliatory measures—the model captures shifts in global trade patterns and highlights the risks that protectionist policies pose to sustainable and inclusive growth. Additionally, we measure the employment creation towards 2030 as a result of the projected export dynamic.

To estimate the employment effects associated with green exports, a multi-regional input-output (MRIO) model is applied, combining the OECD Inter-Country Input-Output Tables with labour data from the ILOSTAT database. This approach enables the estimation of both direct and indirect employment impacts across countries and sectors.

Overall, this study contributes to the literature by jointly analyzing green trade flows and employment generation dynamics using a unified quantitative framework. The results underscore the importance of open trade and investment regimes in fostering the global diffusion of green technologies and generating quality jobs across regions.

Contents

Acronyms and abbreviations

APEC - Asia-Pacific Economic Cooperation

CIF - Cost, Insurance, and Freight

DLI - Domestic Labour Input

DLX - Domestic Labour in Exports

EAP - East Asia and Pacific

EU - European Union

FLI - Foreign Labour Input

FOB - Free on Board

GDP - Gross Domestic Product

GHG - Greenhouse Gas

HS - Harmonized System

IC - Intermediate Consumption

ICIO - Inter-Country Input-Output (Matrix)

ILO - International Labour Organization

ILOSTAT - International Labour Organization Statistics Database

IMF - International Monetary Fund

IPCC - Intergovernmental Panel on Climate Change

LCT - Low Carbon Technology

MRIO - Multi-Regional Input-Output

NA - North America

OECD - Organization for Economic Co-operation and Development

O*NET - Occupational Information Network (U.S.)

PPP - Purchasing Power Parity

RoW - Rest of the World

SA - South Asia

SDGs - Sustainable Development Goals

UN - United Nations

UNFSS - United Nations Forum on Sustainability Standards

USD - United States Dollar

WITS - World Integrated Trade Solution

1. Introduction

The world is in a critical environmental situation and the challenges ahead require collective efforts. One of the last reports from the UN's climate change secretariat indicate that greenhouse gas (GHG) emissions must be reduced by 30-50 percent to avoid a rise in global temperatures above 1.5C over the next two decades (IPCC, 2023). The consequences of climate change are manifested through effects such as increased heat waves, decreasing ice levels at the poles and warming oceans, leading to an intensification of natural disasters such as floods, droughts, hurricanes and other extreme weather events and requires a just transition towards a environmentally sustainable economies and societies (ILO, 2015).

One of the most significant factors contributing to the observed increase in emissions is the process of globalization, which has resulted in the fragmentation of productive activities and an increased demand for goods and services (Hummels et al. ,2001). The value of global merchandise exports has increased significantly since 1948, with exports accounting for an average of 29 percent of a country's GDP in 2016 (Wiedmann and Lenzen, 2018). However, this globalization of trade often shifts the environmental and social impacts of production from the point of consumption to other countries. For example, the energy consumption, pollution and employment impacts of a product, such as food, can be spread across several countries.

In light of the current global situation, it seems advisable to consider a change in the global economic development agenda. The Paris Agreement, signed in 2015 and endorsed by 195 countries, has prompted governments to explore potential transformations in production structures with a view to contributing to the reduction of GHG emissions. The objective is to achieve a significant reduction in emissions by 2030, with the ultimate goal of reaching zero emissions by 2050. To achieve this goal, it is essential to decouple economic growth from emissions and environmental degradation. This can be accomplished by shifting the energy matrix away from fossil fuels, increasing energy efficiency, and promoting a circular economy, among other relevant policies (Cevik and Jalles, 2023).

Within the realm of sustainable trade, the term "green trade" is commonly used to describe trade practices that are beneficial to the environment. However, while the concept of green trade implies environmental benefits, there is a lack of precise definitions for its components (Balineau and De Melo, 2013). Furthermore, there is a divergence in what different governments consider green goods, ranging from renewable energy and energy-efficient technologies to organically produced agricultural goods and certified biodiversity-based products. In the list of environmental goods elaborated by the Asia-Pacific Economic Cooperation (APEC) the criteria were based on improving the access to environmental technologies and contributing to green growth (Kuriyama, 2021).

In a recent study, Ernst et al. (2025) estimated the economic dimensions of green trade, considering its regional relevance in terms of exports and its impact on labour demand. The study found that China and high-income countries play a significant role in the global trade of these goods, although exports from middle-income countries are accelerating. Labour demand linked to green goods exports represents less than 1 per cent of total employment in most regions, except in the European Union where it accounts for around 2 per cent. The study also found that direct employment demand has a positive bias towards formal workers, but a negative bias towards skilled and female labour.

This paper provides a comprehensive examination of the projected dynamic green goods exports over the eight-year period from 2023 to 2030. The main goal is to estimate the potential contribution of these specific groups of products to the overall labour market. This study employs a structural gravity model to assess the trade and employment impacts of green exports, following the theoretical framework developed by Anderson and van Wincoop (2003) and extended by Anderson et al. (2016, 2017), and Larch and Yotov (2016). The gravity approach models bilateral trade flows as a function of economic size, trade costs, and multilateral resistance terms, which capture the relative ease or difficulty of market access in a general equilibrium setting.

Building on recent methodological guidance by Larch et al. (2025), we implement the model in two steps. First, we estimate trade flows using a Poisson Pseudo-Maximum Likelihood (PPML) estimator. The model includes tariff data to identify the impact of trade policy on international versus intra-national trade. Second, we define a counterfactual policy scenario, in which countries engage in a tariff escalation with the United States, to simulate changes in bilateral trade costs and evaluate their effects on trade flows and employment creation towards 2030.

The study employs a multi-regional input-output (MRIO) model that integrates the Organization for Economic Co-operation and Development's (OECD) Inter-Country Input-Output tables with labour statistics from the International Labour Organization's (ILO) Statistics Database (ILOSTAT) in order to estimate the employment impacts associated with green goods exports dynamic.

The remainder of this study is organized as follows. Section 2 describes the data sources, including employment statistics, international trade flows, classifications of environmental goods, and the Multi-Regional Input-Output (MRIO) matrix. Section 3 presents an overview of global trends in the green goods trade. Section 4 analyzes employment associated with green trade, detailing the methodological approach and main findings. Section 5 estimates the future evolution of green trade and its labour market implications, including scenario analysis and projections to 2030. Section 6 concludes the study and outlines potential avenues for future research.

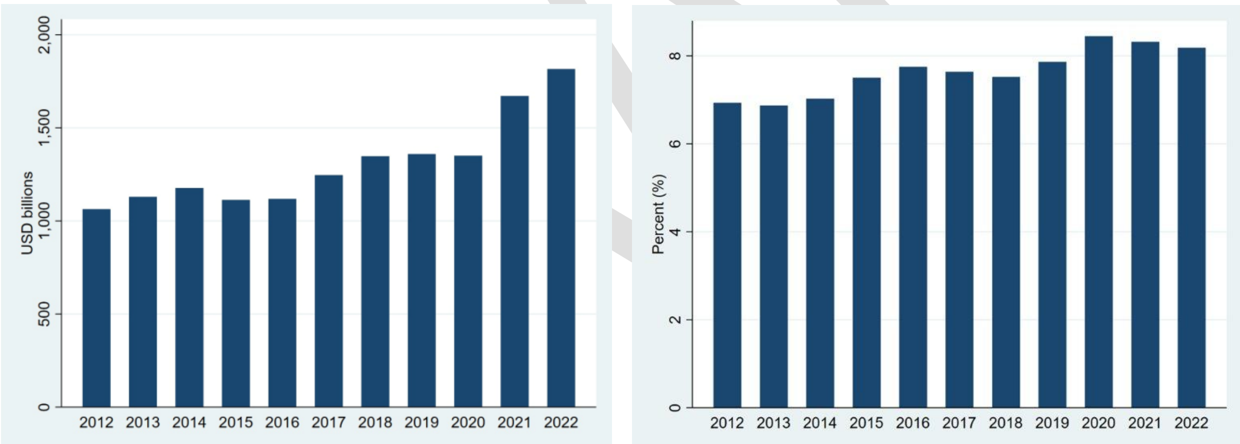
2. The international trade in green goods

This section analyses the dynamics of international trade in green goods, with a particular focus on trends in exports and imports over the period 2012-2022. Moreover, the study analyses the fundamental characteristics of green trade, considering both the regional and sectoral composition. The findings of this study indicate that the export of green goods by China and Middle-income countries increased significantly over the past decade, while exports by High- and Low-income countries demonstrated less substantial growth. Regarding the trade balance, China, the European Union, and the East Asia and Pacific region demonstrate the most significant surplus globally. Conversely, North America, Europe and Central Asia, and Latin America exhibit the most substantial deficit, suggesting a potential imbalance resulting from a mismatch between a structural change in demand and the lack of technological capabilities to supply it.

Figure 1.a illustrates the growth of green trade over the past ten years. The chart shows a remarkable expansion of trade in green products at current values, with a clear upward trajectory from 2021 onwards, reaching around USD 1.8 trillion in 2022. However, to control for post-pandemic inflation levels, Figure 1.b illustrates the proportion of green trade in global trade. In this sense, the proportion of green trade increased between 2013 and 2016, and remained relatively stable during the period 2016 to 2019. The proportion of green goods as a percentage of world trade reached a peak of 8.5 percent in 2020. Although the proportion declined in subsequent years, the levels of green trade remain higher than in the pre-pandemic period, exceeding 8 percent of total world trade.

Figure 1: Green goods world trade, 2012-2022

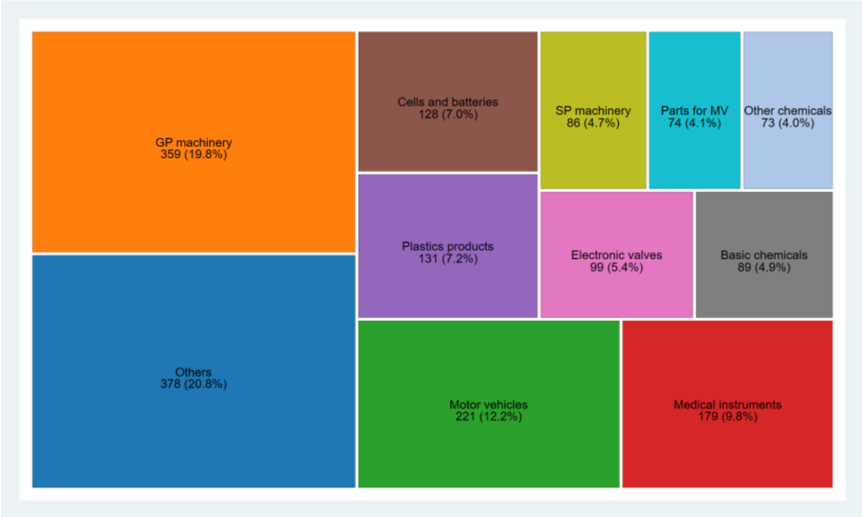
(a) billions of USD dollars at current prices ***(b) as share of world trade***



Source: Author's estimation based on WITS/COMTRADE data base.

Figure 2 illustrates the composition of global trade in green goods. The three sectors with the highest shares are general machinery (19.8 percent), vehicle engines (12.2 percent), and medical instruments (9.8 percent), collectively accounting for 43 percent of total green exports. The "Others" category encompasses several significant industries, including manufacturers of electricity distribution and control apparatus (3.9 percent), electrical equipment (3.8 percent), and electric motors, generators, and transformers (2.8 percent). When considered as a whole, chemicals account for 9.8 percent of the total. This illustrates the significant contribution of these technologies and capital-intensive industries in the green goods list, which highlights the vital role they play in the transition towards a low-carbon global economy (Kirchherr and Urban, 2018).

Figure 2: Green goods, share in world trade, by sector (ISIC rev. 3), 2022



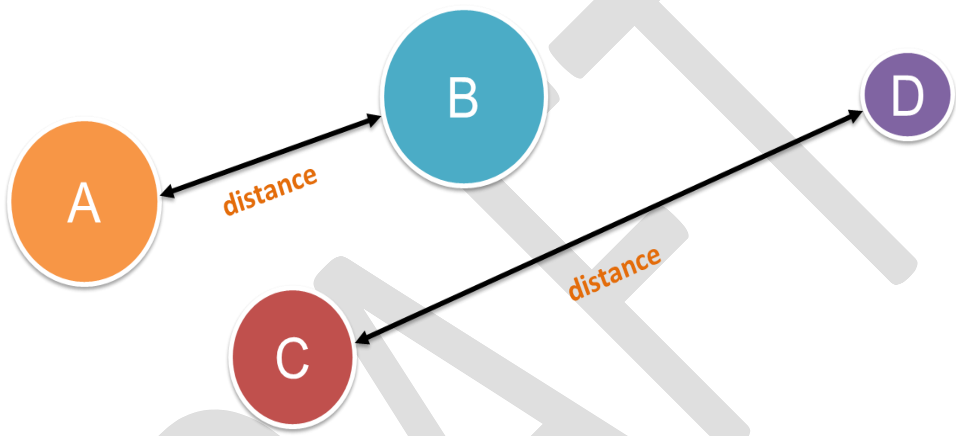
Source: Author's estimation based on WITS/COMTRADE data base.

Note: The value to the left of the percentage label indicates the USD billions of dollars exported in 2022.

3. Estimating the dynamic of green trade

This section estimates the dynamic of green exports for the period 2023-2030. To carry out this estimation, it's used the Gravity Model (GM), which are inspired, as their name suggests, by Newton's equation of gravity. The basic idea, originally proposed by Tinbergen (1962), and later developed by Anderson (1979), is that the volume of trade between two countries depends mainly on the relative size of their economies and the distance between them, as a proxy of bilateral frictions. Pair of countries with bigger size and lower frictions should exhibit larger trade flows than pair of countries with smaller size and higher frictions.

Figure 3: Gravity Model Flow



Source: Own elaboration.

This section introduces the structural gravity model framework, following the model developed by Anderson et al. (2003, 2016) and recently extended by Yotov et al. (2016). This approach emphasizes how trade is interconnected, responding to barriers or frictions arising from both natural and policy-driven factors. The model developed in this section also follows the best practices summarized very carefully in Larch et al. (2025) and Head and Mayer (2014), considering the potential biases and inconsistencies associated with a naive implementation of the model.

A business-as-usual (BAU) scenario is developed for the period from 2018 to 2030 to evaluate the potential dynamics of green trade. This scenario incorporates exogenous projections for key economic variables, including the annual GDP growth rate, as presented in the World Economic Outlook (IMF). Additionally, a trade conflict scenario is simulated to estimate the potential limitations that could hinder the growth of green goods exports over the next decade. The main goal is to provide an overall estimation of the potential employment created by these new exports, while considering how trade tensions could limit the positive impact of trade on the labour market.

Recent applications assessing the impacts of different trade policies, using a gravity model, includes the impact assessment of Brexit (Dhingra et al., 2017), the U.S.-China trade war (Fajgelbaum et al., 2020), and the African Continental Free Trade Area (World Bank, 2020).

3.1. Methodology

The analytical framework builds on a structural gravity model of trade, extensively developed by Anderson et al. (2016, 2017). This framework captures the complex interrelations between trade, and economic outcomes in a general equilibrium setting. The bilateral trade originating from country and hosted in country is formally expressed as:

$$1)\quad X_{ij,t} = \frac{Y_{i,t}E_{j,t}}{Y_t}\left(\frac{t_{ij,t}}{\Pi_{i,t}P_{j,t}}\right)^{1-\sigma}$$

where X_{ij} denotes nominal trade flows from exporter i to destination j; E_j is the total expenditure in importer j, Y_i is the value of total production in exporter i; Y is the value of world output; t_{ij} denotes bilateral trade frictions between partners i and j; σ >1 is the elasticity of substitution among goods from different countries.

The terms P_j and Π_i are structural terms defined by Anderson and van Wincoop (2003) as the inward and outward multilateral resistances, respectively. They represent general equilibrium impacts of bilateral trade frictions:

$$2)\quad P_i = \left[\sum_{j=1}^{N}\left(\frac{t_{ji}}{\Pi_j}\right)^{(1-\sigma)}\frac{Y_j}{Y}\right]^{\frac{1}{1-\sigma}}$$

$$3)\quad \Pi_j = \left[\sum_{i=1}^{N}\left(\frac{t_{ij}}{P_i}\right)^{(1-\sigma)}\frac{E_i}{Y}\right]^{\frac{1}{1-\sigma}}$$

These multilateral resistance terms aggregate the bilateral trade costs faced by each country, thereby indicating how global trade integration impacts individual economies.

Equation (4) is a restatement of the market-clearing condition according to which, at delivered prices, the value of output in country j should equal the value of total sales. In its current version, Equation (6) captures the inverse relationship between the outward multilateral resistance faced by the producers in country j and their factory-gate prices.

$$4)\quad E_j = p_j Y_j$$

Factory-gate prices in equation (5) refer to the cost of goods as they leave the production facility, excluding transportation, distribution, and retail markups. In structural gravity models of trade, they play a crucial role in determining a country's competitiveness. Lower factory-gate prices, driven by lower production costs, wages, or subsidies, make goods more attractive for exports.

$$5)\quad p_j = \left(\frac{Y_j}{\sum_{j=1}^{N} Y_j}\right)^{\frac{1}{1-\sigma}}\frac{1}{y_j \mathit{\Pi}_j}$$

As outlined in earlier discussions, Equation (6) delineates the value of production in country j as a function of factorial demand:

$$6)\quad Y_j = p_j A_j L_j^{1-\alpha_j} K_j^{\alpha_j}$$

The following generic econometric gravity equation can be estimated to obtain to estimates of trade costs and trade elasticities:

$$7)\quad X_{j,i,t} = exp(\pi_{i,t} + \chi_{j,t} + t_{j,i}) \cdot \varepsilon_{j,i,t}$$

Equation (7) is estimated with the PPML estimator (Santos Silva and Tenreyro, 2006), using panel intra-national and international trade data with year intervals, and controlling for exporter-time fixed effects ($\pi_{i,t}$), importer-time fixed effects ($\chi_{j,t}$).

Where $t_{j,i} = \beta_t \tau_{j,i} + \beta_{rta} RTA_{j,i} + \beta_{cntg} CNTG_{j,i} + \beta_{smc} SMCTRY_{j,i}$

$$+\beta_{dst} log(DIST_{j,i}) + \beta_{lng} LANG_{j,i} + \beta_{cly} CLNY_{j,i}$$

are the trade cost estimates including all usual bilateral gravity variables, such as regional trade agreements (RTA), common border (CNTG), domestic flows (SMCTRY), distance (DIST), common language (LANG) and historical colony relationships (CLNY).

The representative non-uniform trade policy, $\tau_{j,i}$,corresponds to the continuous variable for MFN tariff. Finally, $\varepsilon_{j,i,t}$ is a stochastic error term that is assumed to not carry any systematic information about trade costs.

This second step entails defining the counterfactual experiment of interest. The counterfactual scenario involves the introduction or the removal of trade barriers, which will result in a change in bilateral trade costs. The definition of the trade policy variables for the counterfactual trade costs will depend on the policy question under investigation (Larch et al., 2025).

Any adjustment to the trade policy variables specified in the structural gravity model will result in a new matrix of counterfactual (CFL) bilateral trade costs. The differences between the baseline trade costs defined in equation (7) and the counterfactual trade costs reported is $\varepsilon_{j,i,t}$, the initial trade policy shock introduced in the general equilibrium system. As demonstrated above, this shock will translate into changes in the key economic indicators of interest to the policy maker, such as trade and real consumption.

3.2. The scenario analysis

A business-as-usual (BAU) scenario is first developed to establish a baseline in order to evaluate the potential impacts of different trade policies and economic conditions. This scenario is used for calibration and comparison against alternative policy interventions. The temporal window for the simulation spans from 2018 to 2030, incorporating exogenous projections for key economic variables, including annual GDP growth rate from World Economic Outlook-IMF.

Alternative policy scenarios could potentially include fiscal incentives, changes in structural demand, and policies aimed at promoting technology transfer. In this section, policy shock is derived from recent trade conflicts between U.S. and its main trading partners. The objective is to forecast long-term outcomes and to assess the potential risks of different policy measures in affecting green trade and employment, harming economic integration, and reversing globalization.

We simulate one alternative key policy scenario to assess the impact of escalating trade conflicts on trade:

- Scenario RETAL "Deepening Trade conflict with Retaliation": The U.S. expands tariffs by adding to existing rates, based on declarations made by the U.S. government in April 2025. This increase applies to key trade partners, including the European Union and China. In response to the initial tariff increase imposed by the U.S., the rest of the world also implement retaliatory measures, increasing their tariffs by the same amount on U.S. imports.

This scenario will allow us to evaluate the potential macroeconomic and sectoral impacts of rising trade protectionism, considering changes in green trade flows, trade balances, and production adjustments across regions.

3.3. Results

The gravity model estimation, summarized in Table 1, reveals significant insights into the determinants of bilateral green trade flows. Consistent with theoretical expectations, geographic and historical factors such as colonial ties shared borders and shorter distances substantially influence trade volumes. While common language appears statistically insignificant, institutional factors demonstrate substantial impacts, with trade agreements significantly enhancing bilateral exchanges for over 26 per cent. Furthermore, the estimated value of the bilateral tariff cost is statistically significant and can be interpreted as the price elasticity of import demand, with a value of around –5.

Table 1: Gravity Model Estimation Results

Variable	Coefficient	Robust Std. Error	z-value	P-value	95% Confidence Interval
CLNY	1.0117	0.2174	4.65	0	[0.5855, 1.4378]
CNTG	0.6022	0.0756	7.96	0	[0.4540, 0.7505]
LANG	-0.044	0.1013	-0.43	0.664	[-0.2425, 0.1546]
ln_DIST	-0.552	0.0333	-16.55	0	[-0.6173, -0.4866]
SMCTRY	2.2109	0.1469	15.05	0	[1.9230, 2.4987]
RTA	0.2305	0.0699	3.3	0.001	[0.0936, 0.3675]
ln_(1+Tariff)	-5.0345	1.4646	-3.44	0.001	[-7.9051, -2.1638]

Source: Author's estimation.

Number of observations: 7,803
Number of parameters: 310
Pseudo log-likelihood: -3,775.55
Pseudo R-squared: 0.9865

Notes: Variables: CLNY (colonial relationship), CNTG (contiguity), LANG (common language), ln_DIST (logarithm of distance), SMCTRY (same country), RTA (regional trade agreement), ln_Tariff (logarithm of bilateral tariff).

This section also presents the outcomes of the simulation exercises described in the preceding section. We compare the baseline scenario (BAU) with the alternative policy scenario, including the trade conflict case. The analysis focuses on changes in green trade flows, providing a comprehensive view of how external shocks and policy decisions reshape economic dynamics. Quantitative results are reported for key indicators at the national levels.

In the absence of trade conflict, long-term trends show a broadly positive trajectory in export performance across most participating economies. Under the baseline scenario, countries such as China (+49 per cent), Japan (+78 per cent), Korea (+92 per cent), Germany (+51 per cent), Canada (+51 per cent), and Mexico (+52 per cent) experience substantial export growth relative to the base year. These results suggest an expansion of trade ties, particularly for economies deeply integrated into global value chains or with preferential trade access. Emerging economies such as Vietnam (+70 per cent) also register significant export growth, underscoring potential gains from continued integration and diversification strategies.

The simulation results reveal significant and asymmetric impacts of the trade conflict scenario (RETAL) on key participating economies. The United States, as the initiator of the tariff escalation, experiences the most severe contraction across core indicators: exports decline by 23.3 per cent. Among U.S. trade partners, effects vary widely depending on their level of integration and exposure. Mexico and Canada, due its high economic integration with the U.S. and their exclusion from this trade conflict so far, shows an export increase of 8.4 and 9.9 per cent, respectively.

In contrast, several emerging economies, especially from Asia, experience significant trade losses. Vietnam's exports fall by 2.3 per cent, Thailand decline 3 percent and Indonesia fall 2 percent. European economies are also affected, though impacts are less severe, as a result of receiving the lowest tariff increase of 10 per cent. Germany, France, and Italy register modest export losses of 0.3, 0.8, and 1.1 per cent, respectively. China, with a 104 per cent increase in bilateral tariffs with the U.S., sees exports decline by 10.8 per cent, indicating some insulation due to broader diversification but still notable vulnerability.

Table 2: Simulation results: Green Exports in 2030

country	USD billions	per cent change wrt baseline	Per cent points change wrt baseline	per cent change wrt baseline
	Exports base year	change Exports baseline	change bilateral Tariffs with U.S.	change Exports RETAL
ARG	2	37	10	-5.4
AUS	4	72	10	1.6
AUT	18	34	20	-0.5
BEL	21	36	20	-0.5
BRA	6	38	10	-7.2
CAN	23	51	10	9.9
CHE	23	36	31	-1.7
CHL	1	50	10	1.8
CHN	189	49	104	-10.8
COL	0	48	10	-0.9
CZE	24	35	20	-0.5
DEU	320	51	20	-0.3
DNK	15	40	20	-0.7
ESP	19	40	20	-0.9
EST	1	41	20	-0.5
FIN	6	42	20	-1.1
FRA	44	42	20	-0.8
GBR	36	47	10	0.0
GRC	1	49	20	-0.5
HRV	1	35	20	-0.3
HUN	18	33	20	-0.7
IDN	13	71	32	-2.0
IRL	5	40	20	-1.6
ISR	5	49	17	-3.4
ITA	48	43	20	-1.1
JPN	106	78	24	-2.6
KOR	68	92	25	-1.3
LTU	2	39	20	-0.2
MEX	40	52	10	8.4
NLD	32	39	20	-0.8
NOR	3	43	15	-1.1
NZL	1	63	10	-0.1
PAK	0	79	29	-4.9
POL	24	36	20	-0.5
PRT	5	34	20	-0.5
RUS	3	44	10	-4.2
SAU	3	48	10	-3.3
SGP	13	71	10	0.1
SVK	8	42	20	-0.4
SVN	4	37	20	0.0
SWE	15	39	20	-1.2
THA	17	75	36	-3.0
TUN	1	37	28	-1.3
TUR	13	41	10	-0.2
USA	138	50	0	-23.3
VNM	22	70	46	-2.3
ZAF	4	46	30	-4.4

Source: Author's estimation.

4. The employment related to the green exports

This section presents an analysis of the labour dimension of green trade exports, with a focus on the quantity of jobs that are directly and indirectly created because of the export of these types of products One of the most frequently utilised techniques for conducting such an estimation is the input-output model. Multisectoral models have a long tradition, with their origins in the seminal work of Leontief (1951). These models present a simplified framework of the circular flow, in a manner analogous to Quesnay's Tableau Economique (1759).

As previously outlined, this paper employs a multi-regional input-output approach (OECD (2018); Timmer et al. (2014)). To facilitate meaningful cross-country comparisons of employment, it is essential to consider the relationship between final demand and the structure of the world economy. This section provides a concise overview of the methodology used to estimate this employment-trade link, followed by a presentation of the main findings.

4.1. Methodology

The multiregional input-output model can be represented by the following subset of matrices and vectors, starting from the expenditure side:

8) $x = Ze + F$

Where ***x*** is the vector of gross output values, ***Z*** is the matrix of intermediate uses, ***e*** is a row vector of ones and ***F*** is the matrix of final demand.

After some algebraic steps, dividing and multiplying the elements of the matrix ***Z*** by the gross output, it is possible to reformulate equation (1), such that:

9) $x = Ax + F$

where ***A*** the input-output coefficients matrix describing the units of intermediate inputs needed to produce one unit of gross output.

Finally, passing elements from one side of the equation to the other, is obtained the following expression:

10) $x = (1 - A)^{-1}F$

The matrix $B = (1 - A)^{-1}$ is the so-called Leontief matrix or total requirements matrix. Each element of B represents the direct and indirect requirements of input *i* by activity *k*, in country *n* from partner *m*.

To calculate how much employment is generated directly and indirectly by the green exports it is necessary to recover the diagonal matrix θ, whose elements contains the labour to output coefficients.

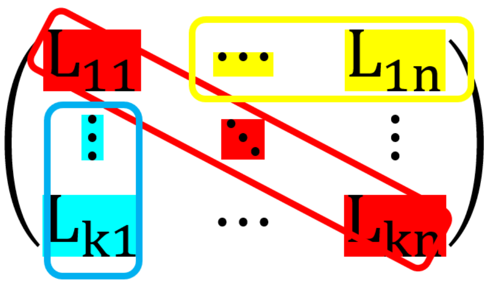
Finally, multiplying the matrix θ by ***B*** and the gross green exports matrix, Δ***E***, yields the matrix Δ***L.*** The subscript *n* refers to the country, while *k* indicates the activity, and Δ the absolute change between the period t and t-1.

11) $(\Delta L_{n\times n}) = (\theta_{n\times n})(I_{n\times n} - A_{n\times n})^{-1}(\Delta E_{n\times n})$

The matrix ***L*** provides all relevant information to estimate the employment included in the gross exports of sustainable goods. Following a similar classification as in the value-added analysis (Aslam et al., 2017), it is possible to estimate the domestic labour input (DLI), the exported labour input (DLX) and the foreign labour input (FLI), which are highlighted in equation x as different components of the ***L*** matrix. The diagonal elements of the ***L*** matrix, shown in red, make up the DLI. The sum of the off-diagonal elements in each column, highlighted in blue, make up the FVI indicator, while the sum of the off-diagonal elements in each row, highlighted in yellow, make up the DLX indicator.

This empirical analysis focuses on the DLI indicator for each country, which is given by the diagonal elements of the ***L*** matrix and represents the domestic labour content embedded in the gross exports of green goods. This estimation excludes, by definition, the foreign labour content in exports contained in the FLI indicator. It is also important to note that DLI includes both direct and indirect employment related to green trade. This means that the result is influenced by national vertical integration, as well as some minor domestic value that returns home via imports and double-counted exports produced domestically (Aslam et al., 2017).

Figure 4: Labour content of exports matrix



Source: Own elaboration.

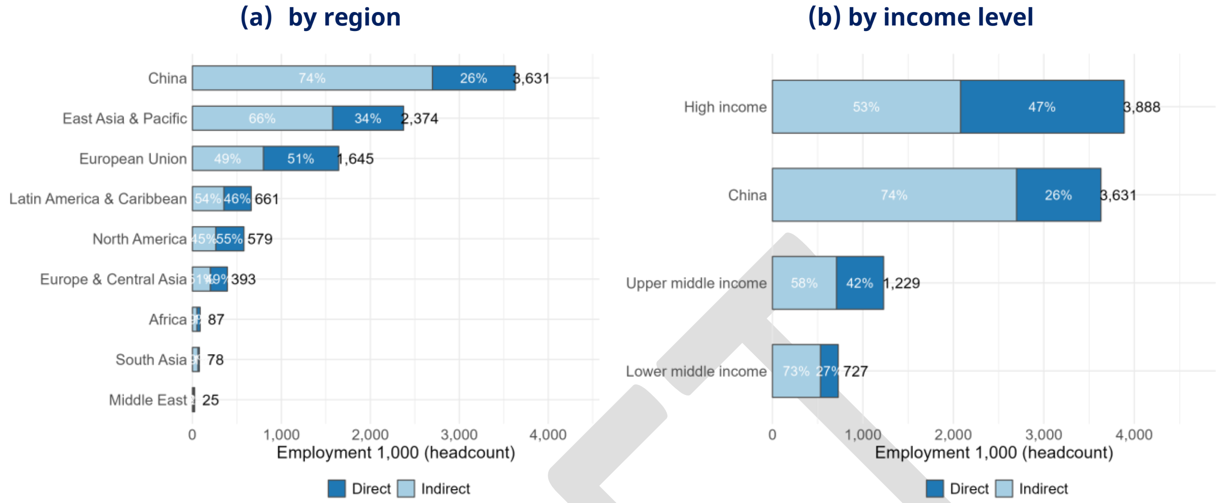
4.2. Results

This subsection presents aggregate figures about the employment sustained by green trade towards 2030, using the matrix calculations presented in the previous section. The exports were multiplied by the Leontief inverse and the labour to output ratio in order to obtain the impact on labour market. Considering the gravity estimation was carried out using aggregate green trade data, it's assumed the sectoral composition remained similar to the baseline.

Another final issue to consider is the impact of productivity on final labour demand. This is a very important element in a long-run estimation. In this regard, the input-output analysis has been seen since a long time ago an effective tool to perform short-run estimations of different policies scenarios, but it should be taken cautiously to perform long run estimations (Xiao and La Marca, 2021). Considering this limitation, we proceed to present the main findings of this section.

Figure 5.a shows the projected change in labour demand associated with green exports growth up to 2030. The results show that China will account for most of the increase in absolute terms with over 3.6 million jobs, followed by East Asia and the Pacific with 2.4 million, the European Union with 1.6 million and North America and Latin America with 0.7 and 0.6 million, respectively. In the case of South Asia and Africa, the regions with lower income per capita in the sample, the employment creation will be very modest, adding less than 100,000 jobs to their economy. In most cases, direct employment creation accounts for around 50 per cent of the total outcome. However, this figure is significantly lower in China and East Asia, primarily due to stronger domestic linkages compared to other regions. In Figure 5.b, is clearer how China and High-income economies will explain the majority of jobs creation in green trade related jobs towards 2030.

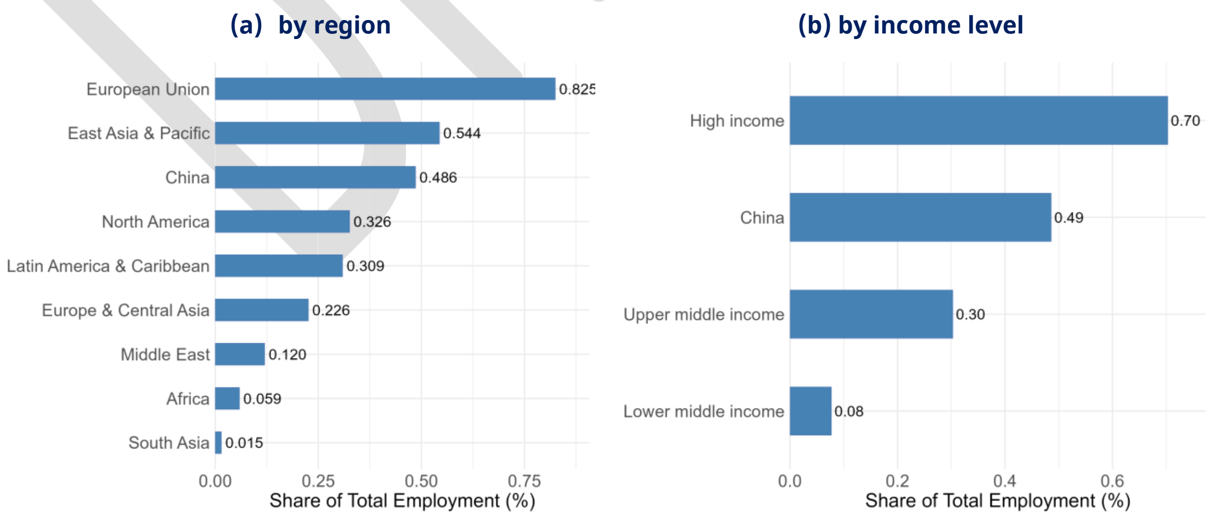
Figure 5: Change in employment demand (Thousand jobs) in Baseline scenario (with respect to base year)



Source: Author's estimation.

When the impact is measured in relative terms to the total current employment in the economy, as in Figure 6, the European Union leads the table, exceeding 0.8 percent. East Asia and Pacific, and China follow with 0.54 percent and 0.48 percent, respectively. ECA, North America, and LAC countries exhibit numbers of around 0.3 percent. For the remaining countries the share is below 0.2 per cent.

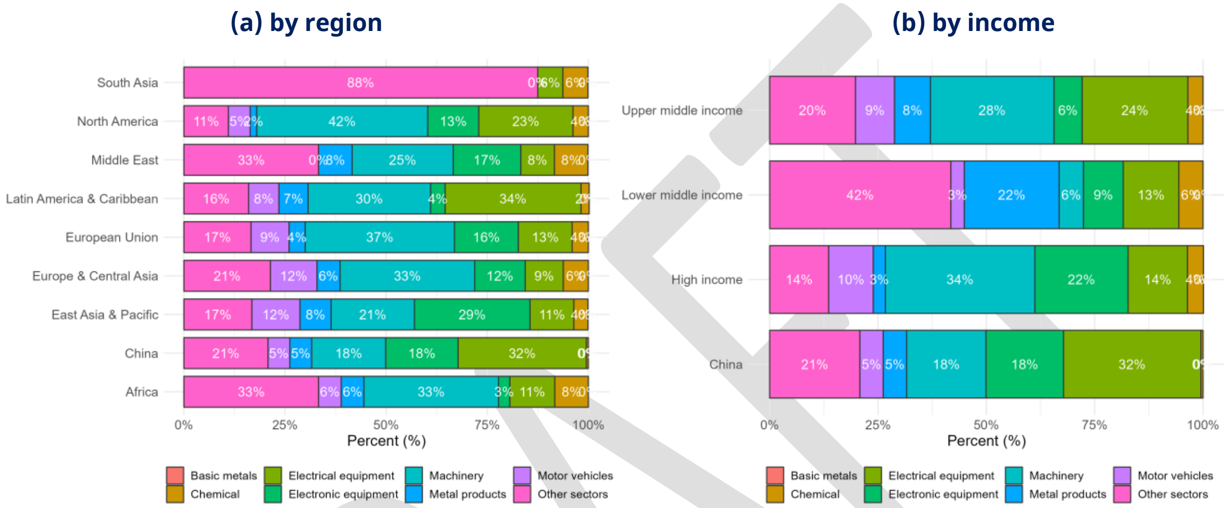
Figure 6: Change in employment demand (as per cent of total employment) in Baseline scenario (with respect to base year)



Source: Author's estimation.

Figure 7 illustrates the sectoral distribution of direct employment creation by region and by income. Direct employment effect is defined as the labour requirements necessary to export certain amount of green goods. The 45 activities in the MRIO have been condensed into seven sectors and a residual "Others" category. The charts demonstrate that the machinery and equipment sector is the most significant contributor to employment, with approximately 30 per cent of total employment supported by green trade, varying by region and income level. The next most significant contributors are electric and electronic equipment, followed by vehicles, chemical and metals.

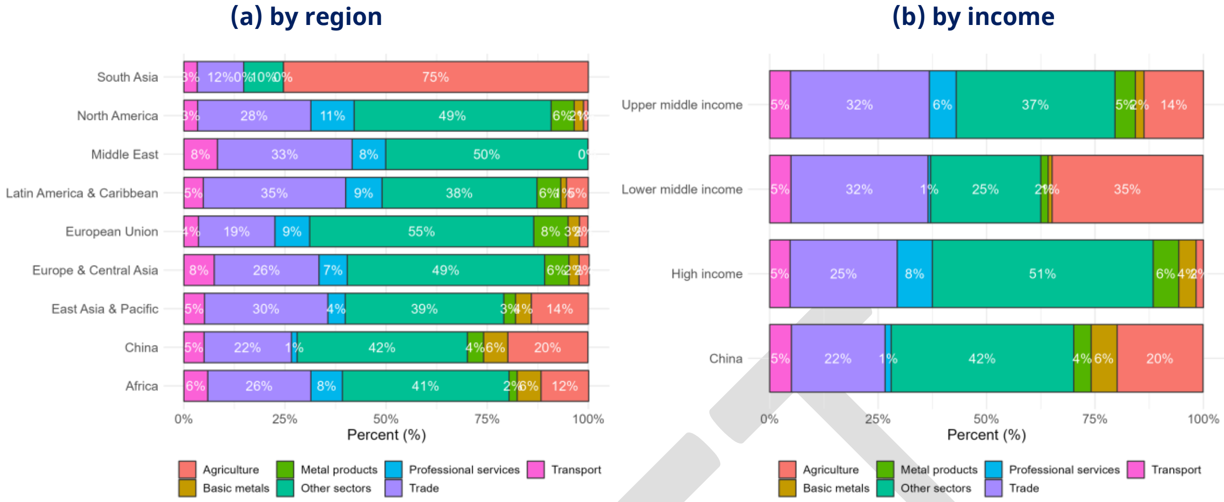
Figure 7: Change in Direct employment demand in Baseline scenario (with respect to base year), sectoral decomposition



Source: Author's estimation.

Additionally, Figure 8 illustrates the sectoral distribution of the indirect employment creation by region and by income. The Indirect employment effect is defined as the labour requirements related to the purchase of domestic intermediate goods used to produce the green goods originally exported. The charts demonstrate that the trade, transport and agricultural sector are the most significant contributor to employment, with approximately 60 per cent of indirect employment supported by green trade, varying by region and income level.

Figure 8: Change in Indirect employment demand in Baseline scenario (with respect to base year), sectoral decomposition



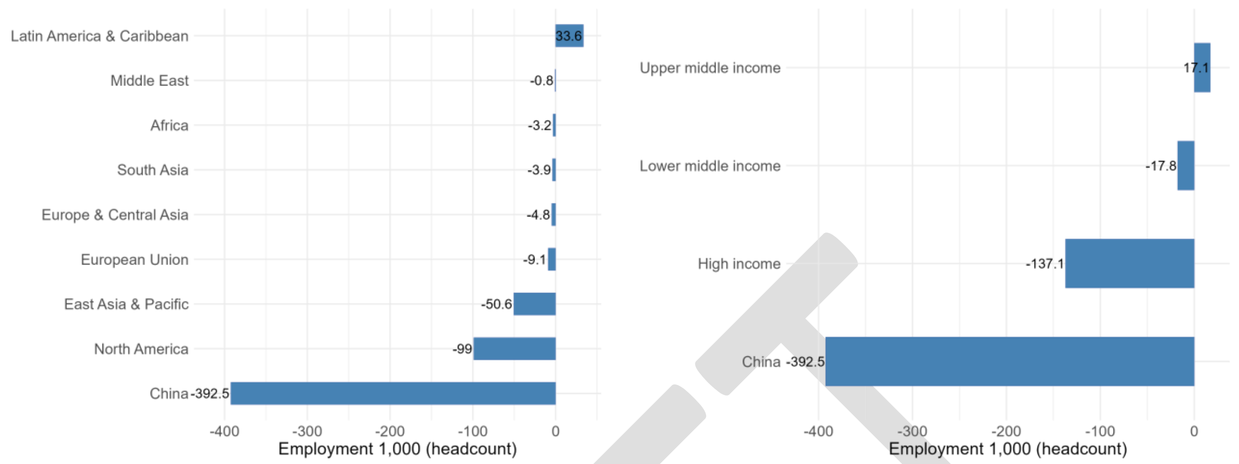
Source: Author's estimation.

Finally, Figure 9 shows the change in employment generated by the trade war scenario. In this simulation, the results estimate a significant trade reallocation at the global level, with China, and the U.S. as the most affected countries. If we only consider green goods, the trade conflict could cost China almost 400 thousand jobs, with a negative impact on the U.S. exceeding 100 thousand.

European Union lost jobs are quite limited relative to the rest of the world, losing around 9 thousand jobs. Latin America, driven by Mexico, exhibit a positive value, indicating an increase in employment as a result of the import substitution effect triggered by the tariff conflict. In East Asia, the total employment loss is around 50 thousand, a relative limited number considering the extension of its labour force. The expected tariff of U.S. on Asian countries, generates a decline in these countries and leads to the relocation of demand to different countries, most of which benefit from the import substitution that will result from the trade conflict, such us Mexico and Canada.

Figure 9: Change in employment (Thousand jobs) demand in Policy scenario (with respect to Baseline scenario)

(a) by region **(b) by income level**



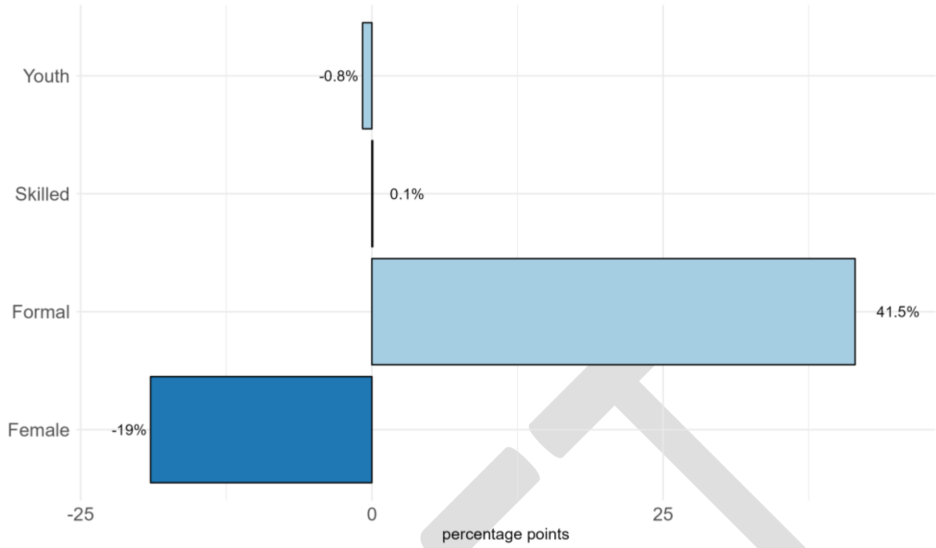
Source: Author's estimation.

The following formula illustrates the observed bias across different groups of employment: gender, age, skill and formality status. Now, "bias" is defined as the percentage point (pp) difference between the observed share of a group of reference (i.e. formal or youth) supported by green trade and the economy wide average. For instance, if female employment in green trade-related jobs is 51% and is 50% in the economy, the estimated bias is 1pp. This kind of analysis is useful for gaining insight into the distinctive characteristics of green trade-related employment.

5) $$bias_i = \frac{\sum_j x^{green}_{(j/i=1)}}{\sum_j x^{green}_j} - \frac{\sum_j x_{(j/i=1)}}{\sum_j x_j}$$

Figure 10 illustrates the bias in labour characteristics for direct employment creation. The results show that there is a positive bias in the proportion of formal employment worldwide, and a negative bias in female employment in green, trade-related sectors. At the same time, there is no significant bias in terms of skills or age. Industrial core sectors such as machinery, metals and chemicals explain this orientation of labour commanded by green exports.

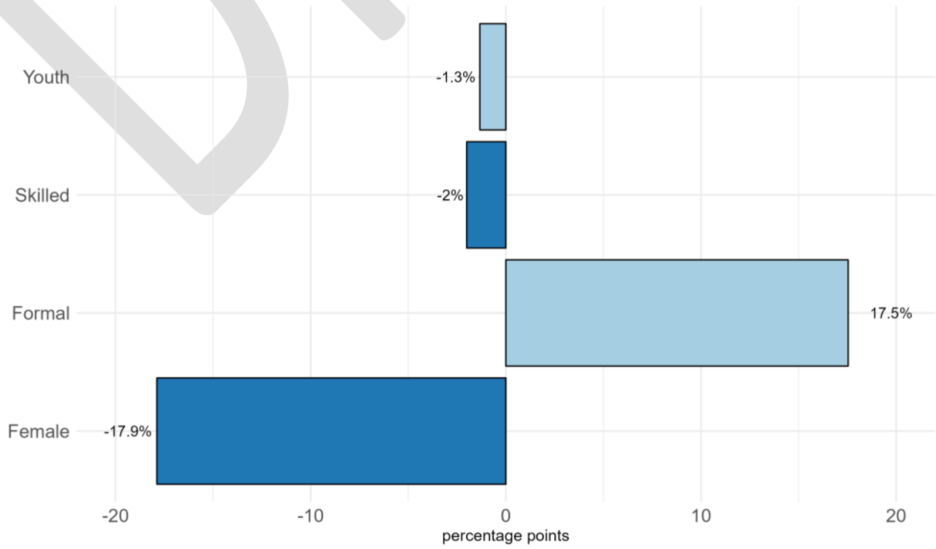
Figure 10: Bias by gender, age, skill and formal status employment, Direct Employment



Source: Author's estimation.

Figure 11 depicts the bias in indirect employment arising from new green goods exports. Once again, there is a positive bias in the proportion of formal employment, but a negative bias in terms of gender. This difference is explained by the importance of sectors such as trade and agriculture in terms of the indirect employment demanded by green exports. Additionally, this type of labour demand exhibits a negative bias in terms of skill and age, which is different from the neutral result presented in the direct effect.

Figure 11: Bias by gender, age, skill and formal status employment, Indirect Employment



Source: Author's estimation.

5. Concluding remarks

This paper presented a comprehensive analysis of green trade flows dynamics towards 2030 and their associated employment impact. By establishing a connection between comprehensive labour data from ILOSTAT, the IMF green goods list, and the OECD's input-output tables, the study found valuable insights into the impact of green exports on jobs creation in the mid-term scenario.

The results suggest that High-income countries and China will have a disproportionate influence on green exports during the following years. In the absence of trade conflict, most economies experience strong green export growth. Countries like China (49 per cent), Japan (78 per cent), Korea (92 per cent), Germany (51 per cent), Canada (51 per cent), and Mexico (52 per cent) lead the trend, reflecting deeper integration in global value chains. Emerging economies such as Vietnam (70 per cent) also benefit from expanded trade.

Under the policy scenario simulating a more protectionist environment in the coming years, these gains are unevenly affected. The United States, as the initiator, sees exports fall by 23.3 per cent, while China, facing a 104 per cent tariff hike, registers a 10.8 per cent export decline. Vietnam, Thailand, and Indonesia also experience modest losses. Conversely, Mexico (8.4 per cent) and Canada (9.9 per cent) gain from trade diversion, being largely shielded from the conflict. European countries face mild impacts due to relatively low tariff exposure.

Green trade growth also supports substantial job creation. Under the baseline, China generates over 3.6 million new jobs, followed by East Asia and the Pacific (2.4 million), the European Union (1.6 million), North America (0.7 million), and Latin America (0.6 million). In lower-income regions such as South Asia and Africa, employment gains remain modest. In the trade conflict scenario, China and the United States lose the most jobs, while Mexico shows positive employment effects due to import substitution. The European Union is relatively unaffected, and East Asia sees limited job losses.

Further research could provide greater insight by examining the detailed occupational structures, and skill demand, within each country and their specific interactions with international trade dynamics. This research could help to identify how countries can adapt their labour force and human capital to upgrade productive capacities and benefit from the green transition. Additionally, it is also crucial to incorporate the dimension of "green jobs" in the future to gain a comprehensive understanding of the broader implications of green trade on labour markets. This entails assessing how green jobs contribute to economic transformation, their quality, and their potential to drive structural transformation as economies transition towards a low-carbon scenario.

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Annex A: Data Sources

In this empirical section of the document are described the data used to assess the employment impact of the green goods exports: the Multi Regional Input Output (MRIO) matrices, the environmental goods list, employment data, and the trade bilateral flows. In the remainder of this section, these sources are described in more detail.

5.1. Employment

The ILO collects the underlying household survey datasets compiled by national statistical offices around the world from 161 countries. Thereafter, the raw data is systematically processed to produce harmonized indicators based on international statistical standards. As a result, ILOSTAT[1] produce and publish a wide range of detailed and internationally comparable labour statistics.

In this document, all the employment-related parameters are obtained from a satellite account containing employment data from ILOSTAT. This classification includes the working-age population actively employed, who are defined as individuals engaged in any activity for at least one hour to produce goods or services in exchange for pay or profit, even if they are temporarily absent from work (ILO, 2013).

Additionally, the labour data provide breakdowns by age group, gender, skill and employment formality. Within this framework, the concept of informal employment refers to those jobs that, in practice or by law, are not subject to national labour legislation, income taxation, or social protection, and do not provide entitlement to benefits such as paid leave (ILO, 2013). The skill level associated with an occupation is a function of the complexity and scope of these tasks, typically assessed through the lens of occupational requirements or educational attainment. For simplicity, are considered only two groups: skilled and unskilled workers. Skilled occupations, include roles like Managers, Professionals, and Technicians, which demand advanced education, specialized training, or significant experience. In contrast, unskilled occupations involve routine tasks requiring less formal education or training, including Clerical Support Workers, Service and Sales Workers, and Elementary Occupations. The age group definition categorizes workers between youths and adults according to their current age. Workers with age between 15 and 29 years are labelled as youth.

5.2. International trade flows

To estimate the international flow of green goods, including countries of origin and destination, were utilized bilateral import data from the UN Comtrade Database for the period 2012-2022. The UN Comtrade data provides detailed information on bilateral export (FOB) and import (CIF) values and quantities at the HS 6-digit level for approximately 178 countries. The trade flows valued at CIF and FOB basis, often result in a 5 to 20 percent discrepancy, with the accuracy of data varying between countries. Usually, discrepancies can arise when the same product is categorized differently by exporting and importing countries. Considering imports generally are recorded more precisely due to their association with tariff revenues, this empirical analysis uses the CIF bilateral trade data. In order to analyse the growth rate of exports during the period 2012-2022, the trade flows were deflated using the US Consumer Price Index (CPI) (Feenstra and Romalis, 2014) to account for inflation in international trade over time.

5.3. Environmental goods

In absence of a unified definition for environmental goods, this study relies on the data on environmental goods from IMF (2021). Environmental goods are divided into two groups: connected goods, which are directly used for environmental protection, and adapted goods, which have been modified to be more environmentally friendly. Examples of connected goods include septic tanks and catalytic converters, while adapted goods include biofuels and electric vehicles. According to IMF (2021), the initial list of environmental goods was derived from the

[1] https://ilostat.ilo.org/data/

OECD/Eurostat (1999) classification mapped to the 2017 HS codes, with further additions made through research and consultation of updates to the HS nomenclature. This list has some similarities with the Asia Pacific Economic Cooperation[2] (APEC) list of environmental goods. According to Steenblik (2005), the APEC list was largely influenced by the work of OECD/Eurostat, making the two lists broadly similar.

While the final list is comprehensive, it is not exhaustive, as some environmental goods do not have specific HS codes, and some codes may include non-environmental goods. The IMF list added an additional set of 108 products, mainly based on the Pigato et al. (2020) definition of Low Carbon Technology (LCT) products. Finally, for the purposes of this empirical analysis, the list was converted to the HS 2012 classification to make it compatible with the trade data and the selected period of analysis. The final list of environmental goods consists of a set of 225 HS 6-digit products.

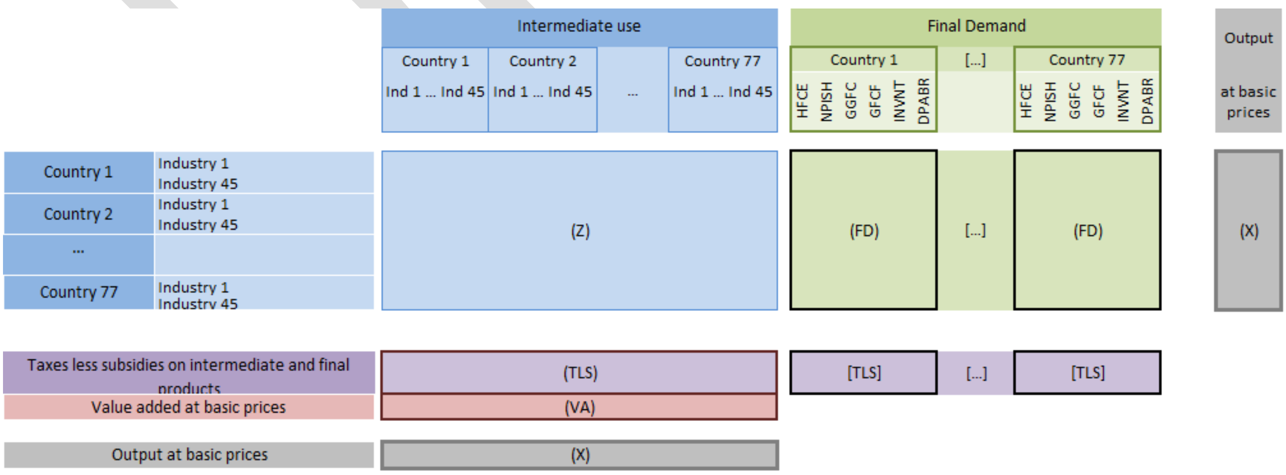
5.4. Multi Regional Input Output Matrix

For the calculation of employment related to exports this document used the ICIO (Inter-Country Input-Output) matrix of the OECD with base year 2019, which synthesizes information on 45 economic activities for 76 individual countries, and an additional region representing the rest of the world (RoW).

The input-output table is a representation of the economy's monetary transactions between productive and institutional sectors. It captures the sectoral composition of the GDP components such as household consumption, government expenditure, investment, exports, and imports, as well as the sectoral composition of taxes and value-added components such as wages and profits.

In the MRIO version, the intermediate transactions matrix, Z, contains the purchases and sales of inputs between sectors within the same country, but also includes external sales and purchases to and from third destinations. Final demand, on the other hand, is a matrix whose rows contain the final purchases made by countries at the sectoral level and includes imports from other destinations. In turn, this matrix includes columns detailing the components of domestic demand: private consumption, public consumption and investment. Finally, since a country's imports are the exports of other countries, external sales at the sectoral level, and by component, are represented in the final demand matrix, in the columns outside the main diagonal.

Figure 12: Structure of the multi-regional input-output matrix OECD



Source: OECD (2022)

[2] https://www.apec.org/meeting-papers/leaders-declarations/2012/2012_aelm/2012_aelm_annexc

Along the document, the macro data available in the ICIO was expanded to include other relevant variables, such as GDP and population, which were taken from the last version of the Penn World Table (Feenstra et al., 2015), released in 2023. Penn World Table is a database with information on relative levels of income, output, input and productivity, covering 183 countries, and all the 76 included in the OECD MRIO, between 1950 and 2021.

Annex B: Additional Tables

Figure 13: Green goods exports, most traded goods, 2022

Product	World Export (millions USD)	Main Exporter	Share of main exporter in total green export product (percent)
Vehicles; for transport of persons (other than those of heading no. 8702) n.e.c. in heading no. 8703	171,405	Germany	21
Electric accumulators; lithium-ion, including separators, whether or not rectangular (including square)	72,289	China	58
Electrical apparatus; photosensitive, including photovoltaic cells, whether or not assembled in modules or made up into panels, light-emitting diodes (LED)	66,220	China	49
Plastics; other articles n.e.c. in chapter 39	62,603	China	29
Boards, panels, consoles, desks and other bases; for electric control or the distribution of electricity, (other than switching apparatus of heading no. 8517), for a voltage not exceeding 1000 volts	57,947	China	17
Taps, cocks, valves and similar appliances; for pipes, boiler shells, tanks, vats or the like, including thermostatically controlled valves	45,825	China	22
Electrical machines and apparatus; having individual functions, not specified or included elsewhere in this chapter, n.e.c. in heading no. 8543	42,984	China	35
Machines and mechanical appliances; having individual functions, n.e.c. or included in this chapter	36,746	Germany	15
Biodiesel and mixtures thereof; not containing or containing less than 70percent by weight of petroleum oils or oils obtained from bituminous minerals	29,495	Netherlands	22
Engines; parts for internal combustion piston engines (excluding spark-ignition)	27,298	Germany	21
Engines; parts, suitable for use solely or principally with spark-ignition internal combustion piston engines (for other than aircraft)	25,792	Germany	16
Machinery; for filtering or purifying gases, other than intake air filters for internal combustion engines	25,062	Germany	13
Instruments, appliances and machines; for measuring or checking n.e.c. in chapter 90	22,891	Germany	15

Regulating or controlling instruments and apparatus; automatic, other than hydraulic or pneumatic	19,563	United States of America	15
Electric motors and generators; parts suitable for use solely or principally with the machines of heading no. 8501 or 8502	18,196	China	27
Machines and mechanical appliances; parts, of those having individual functions	17,924	Germany	17
Pumps and compressors; for air, vacuum or gas, n.e.c. in heading no. 8414	17,573	China	19
Petroleum oils and oils from bituminous minerals, containing biodiesel, not crude, not waste oils; preparations n.e.c, containing by weight 70percent or more of petroleum oils or oils from bituminous minerals	17,519	Germany	21
Plastics; plates, sheets, film, foil and strip (not self-adhesive), of polymers of ethylene, non-cellular and not reinforced, laminated, supported or similarly combined with other materials	16,393	Germany	12
Turbines; parts of gas turbines (excluding turbo-jets and turbo-propellers)	15,817	United States of America	32

Figure 14: Green goods exports, main exporters, 2022

Country	Exports (millions USD)	Main Product	Share of main product in total green export basket (percent)
China	299,033	Electric accumulators; lithium-ion, including separators, whether or not rectangular (including square)	14
Germany	185,026	Vehicles; for transport of persons (other than those of heading no. 8702) n.e.c. in heading no. 8703	19
United States of America	148,792	Vehicles; for transport of persons (other than those of heading no. 8702) n.e.c. in heading no. 8703	10
Japan	101,733	Vehicles; for transport of persons (other than those of heading no. 8702) n.e.c. in heading no. 8703	18
Rep. of Korea	57,994	Vehicles; for transport of persons (other than those of heading no. 8702) n.e.c. in heading no. 8703	23
Italy	48,354	Taps, cocks, valves and similar appliances; for pipes, boiler shells, tanks, vats or the like, including thermostatically controlled valves	8
Mexico	47,577	Boards, panels, consoles, desks and other bases; for electric control or the distribution of electricity,	13

		(other than switching apparatus of heading no. 8517), for a voltage not exceeding 1000 volts	
France	41,450	Vehicles; for transport of persons (other than those of heading no. 8702) n.e.c. in heading no. 8703	16
Netherlands	36,642	Biodiesel and mixtures thereof; not containing or containing less than 70percent by weight of petroleum oils or oils obtained from bituminous minerals	17
United Kingdom	36,410	Vehicles; for transport of persons (other than those of heading no. 8702) n.e.c. in heading no. 8703	19
Poland	32,783	Electric accumulators; lithium-ion, including separators, whether or not rectangular (including square)	23
Belgium	30,876	Vehicles; for transport of persons (other than those of heading no. 8702) n.e.c. in heading no. 8703	33
Malaysia	28,492	Electrical apparatus; photosensitive, including photovoltaic cells, whether or not assembled in modules or made up into panels, light-emitting diodes (LED)	21
Spain	27,099	Vehicles; for transport of persons (other than those of heading no. 8702) n.e.c. in heading no. 8703	26
Canada	25,486	Vehicles; for transport of persons (other than those of heading no. 8702) n.e.c. in heading no. 8703	7
Czech Rep.	24,369	Vehicles; for transport of persons (other than those of heading no. 8702) n.e.c. in heading no. 8703	23
Hungary	20,125	Electric accumulators; lithium-ion, including separators, whether or not rectangular (including square)	21
Thailand	18,547	Electrical apparatus; photosensitive, including photovoltaic cells, whether or not assembled in modules or made up into panels, light-emitting diodes (LED)	17
Sweden	17,477	Vehicles; for transport of persons (other than those of heading no. 8702) n.e.c. in heading no. 8703	22

Figure 15: List of green goods (IMF, 2021)

HS2017	Description	HS2017	Description
220110	Mineral and aerated waters, unsweetened and unflavoured	841911	Instantaneous gas water heaters
220710	Undenatured ethyl alcohol, 80% vol.	841919	Other non-electric water heaters
220720	Denatured ethyl alcohol and spirits	841939	Dryers, non-domestic
252100	Limestone flux	841940	Distilling plant, non-domestic
252220	Slaked lime	841950	Heat exchangers
252390	Hydraulic cement, n.e.c.	841960	Air/gas liquefying machinery

253090	Mineral substances, n.e.s.	841989	Other temperature treatment machinery
271020	Biodiesel-containing petroleum oils, 70%	841990	Parts for heat exchange equipment
280110	Chlorine	842119	Other centrifuges
280519	Alkali metals (excluding sodium, calcium)	842121	Water filtering/purifying machinery
281410	Anhydrous ammonia	842129	Other liquid purifying machinery
281511	Sodium hydroxide, solid	842139	Gas purifying machinery
281512	Sodium hydroxide, in solution	842191	Parts for centrifuges
281610	Magnesium hydroxide/peroxide	842199	Parts for filtering machinery
281830	Aluminium hydroxide	842220	Bottle cleaning machinery
282010	Manganese dioxide	842381	Weighing machines, <30kg
282090	Other manganese oxides	842382	Weighing machines, 30-5000kg
282410	Lead monoxide	842389	Other weighing machines
282520	Lithium oxide and hydroxide	842490	Parts for sprayers
282690	Complex fluorine salts, n.e.s.	845620	Ultrasonic machine-tools
282739	Chlorides (excluding common metals)	845640	Plasma arc machine tools
283210	Sodium sulphites	845650	Water-jet cutting machine tools
283220	Other sulphites	847420	Crushing/grinding machines
283510	Phosphinates or phosphonates	847439	Mixing/kneading machines
283522	Mono/disodium phosphates	847780	Rubber/plastic working machinery
283524	Potassium phosphates	847982	Mixing/grinding machines
283525	Calcium hydrogenorthophosphate	847989	Appliances, having individual functions
283526	Other calcium phosphates	847990	Parts for mechanical appliances
283529	Other phosphates (excluding polyphosphates)	848110	Pressure reducing valves
283691	Lithium carbonate	848130	Check valves
284700	Hydrogen peroxide	848140	Safety valves
285310	Distilled and conductivity water	848180	Other valves/taps
290511	Methanol	848340	Gears and speed changers
320910	Acrylic or vinyl paints, in aqueous medium	848360	Clutches and shaft couplings
320990	Other paints, in aqueous medium	850161	AC generators, 75kVA
380210	Activated carbon	850162	AC generators, 75-375kVA
380290	Activated natural minerals, animal black	850163	AC generators, 375-750kVA
381511	Nickel-based catalysts	850164	AC generators, >750kVA
381512	Precious metal-based catalysts	850231	Wind-powered generating sets
381519	Catalysts with other active substances	850239	Electric generating sets (excluding wind)
381590	Unsupported reaction initiators/accelerators	850300	Parts for electric motors/generators
382600	Biodiesel, <70% petroleum content	850490	Transformers, converters, inductors, parts
390690	Acrylic polymers, other	850590	Magnets, electromagnets, parts
391400	Ion exchangers, polymer	850650	Lithium batteries
392010	Polyethylene plates, sheets, film	850680	Primary cells (excluding common types)
392020	Polypropylene sheets	850710	Lead-acid batteries for piston engines
392321	Ethylene polymer sacks/bags	850720	Lead-acid batteries (other)
392490	Household/toilet articles of plastic	850730	Nickel-cadmium batteries
392690	Other plastic articles, n.e.c.	850740	Nickel-iron batteries
441873	Bamboo flooring panels	850750	Nickel-metal hydride batteries

470620	Pulp from recycled paper	850760	Lithium-ion batteries
470710	Waste paper, unbleached kraft	850780	Other electric accumulators
470720	Waste paper, bleached chemical pulp	850790	Parts for electric accumulators
470730	Waste paper, mechanical pulp	851410	Electric resistance furnaces
470790	Other waste paper	851420	Induction/dielectric furnaces
480524	Recycled linerboard, 150g/m2	851430	Other electric furnaces
480525	Recycled linerboard, >150g/m2	851490	Parts for electric furnaces
560314	Nonwovens, >150g/m2	851629	Other electric heating apparatus
580190	Pile/chenille fabrics	853120	Signalling apparatus, LCD/LED
680610	Mineral wool	853224	Fixed ceramic capacitors
680690	Insulating mineral mixtures/articles	853710	Control panels, <1000 volts
681099	Cement/concrete articles	853931	Fluorescent lamps
700800	Multi-walled insulating glass units	853950	LED lamps
701931	Glass fibre mats	854140	Solar cells
701939	Glass fibre webs, mattresses, boards	854370	Electrical apparatus, n.e.c.
701990	Other glass fibre products	854390	Parts for electrical apparatus
730820	Iron/steel towers, lattice masts	860120	Battery-powered rail locomotives
730900	Tanks, vats, >300L	870220	Public transport vehicles, diesel-electric
731010	Tanks, drums, 50-300L	870230	Public transport vehicles, petrol-electric
731021	Cans, <50L, sealed	870240	Public transport vehicles, electric
731029	Other cans, <50L	870340	Vehicles, petrol-electric, non-plug-in
732111	Gas cooking appliances	870350	Vehicles, diesel-electric, non-plug-in
732190	Non-electric domestic appliances, parts	870360	Vehicles, petrol-electric, plug-in
732490	Sanitary ware (excluding sinks/baths)	870370	Vehicles, diesel-electric, plug-in
732510	Cast iron articles	870380	Electric vehicles
761100	Aluminium tanks, >300L	870892	Motor vehicle exhaust pipes
761290	Aluminium casks/drums, 300L	871160	Electric motorcycles
780600	Other articles of lead	900190	Optical lenses, unmounted
840219	Vapour generating boilers	900290	Mounted optical elements
840290	Parts for steam boilers	901320	Lasers
840410	Auxiliary plant for boilers	901380	Optical devices, n.e.c.
840420	Steam condensers	901390	Parts for optical devices
840490	Parts for auxiliary plant/condensers	901580	Surveying equipment, n.e.c.
840510	Gas generators	902511	Liquid thermometers
840681	Steam turbines, >40MW	902519	Other thermometers
840690	Parts for steam turbines	902580	Hydrometers, barometers, hygrometers
840991	Parts for spark-ignition engines	902610	Flow/level measuring instruments
840999	Parts for diesel engines	902620	Pressure measuring instruments
841011	Hydraulic turbines, 1000kW	902680	Other measuring instruments
841012	Hydraulic turbines, 1000-10000kW	902690	Parts for measuring instruments
841013	Hydraulic turbines, >10000kW	902710	Gas/smoke analysis instruments
841090	Parts for hydraulic turbines	902720	Chromatographs
841181	Gas turbines, 5000kW	902730	Spectrometers
841182	Gas turbines, >5000kW	902750	Optical radiation instruments

841199	Parts for gas turbines	902780	Instruments for physical/chemical analysis
841290	Parts for engines/motors	902790	Parts for analysis instruments
841320	Hand-operated pumps	902810	Gas meters
841350	Reciprocating positive displacement pumps	902820	Liquid meters
841360	Rotary positive displacement pumps	903010	Ionising radiation instruments
841370	Centrifugal pumps	903149	Other optical instruments
841381	Other pumps	903180	Other measuring instruments
841410	Vacuum pumps	903190	Parts for measuring instruments
841430	Refrigerating compressors	903210	Thermostats
841440	Towable air compressors	903220	Manostats
841480	Other air/gas compressors	903281	Hydraulic/pneumatic regulators
841490	Parts for compressors/fans	903289	Other automatic regulators
841581	Reversible heat pumps	903290	Parts for regulating instruments
841780	Non-electric furnaces/ovens	903300	Parts for chapter 90 instruments
841790	Parts for non-electric furnaces	960310	Hand brooms
841861	Heat pumps, non-air conditioning	960350	Brushes for machines
841869	Refrigerating equipment, n.e.c.	960390	Mechanical floor sweepers

Quick Part module "5-Contact Details":

The Contact details box is aligned with the text and has to be **positioned at the bottom of the last page**. If there are footnotes at the bottom of the last page, position this Contact details box underneath the last footnote by using "Shape Format→Square".

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