International Labour Organization

Circular Economy, Trade and Employment

Motivation

The growing urgency to address climate change, biodiversity loss, and resource scarcity has put the circular economy (CE) at the centre of global sustainability debates. While CE policies are often focused on domestic material reuse and waste reduction, international trade plays a crucial yet under-explored role in facilitating—or hindering—the transition toward circularity. At the same time, the employment implications of CE trade remain poorly understood, particularly across different regions, sectors, and income groups. This report addresses this gap by offering the first systematic global estimate of the number, type, and distribution of jobs embedded in circular economy exports, both directly and indirectly through global supply chains.

Definitions and scope

In this study, CE goods are defined as traded products that are recyclable, reusable, refurbished, or made from secondary raw materials, based on the convergence of frameworks from UNECE, EUROSTAT, ISO, and other international institutions. A novel harmonisation method is used to extract 159 CE goods from the HS 2022 classification at the 6-digit level. The concept of CE employment includes both direct jobs (in recycling, reuse, remanufacturing, etc.) and indirect jobs generated through upstream linkages in other sectors.

Methodological approach

The analysis combines trade, employment, and input-output data using the following steps:

1. Compilation of a CE goods list based on HS6 codes using keyword matching and expert validation.
2. Collection and harmonisation of trade data (UN COMTRADE), employment statistics (ILOSTAT), and input-output tables (OECD ICIO and GTAP-CE).
3. Direct job estimation by calculating employment-to-output ratios per sector and applying them to CE exports.
4. Indirect job estimation using a Multi-Regional Input-Output (MRIO) model to trace upstream employment effects.
5. Characterisation of CE jobs by formality, gender, age, and skill level, and identification of sector-country employment hotspot

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Results

Trade patterns:

- CE goods make up only 0.52% of global trade by volume and 1.29% by value, highlighting their marginal role in the global economy.
- CE trade is concentrated in high-income countries (EU, US, Japan), but employment linked to these exports is mostly generated in low- and middle-income countries.
- The leading CE-exporting sectors by value are basic metals (50%), food and beverages (23%), and paper products (12%).

Employment:

- CE exports support 5.96 million jobs worldwide, of which 27% are direct and 73% are indirect.
- Middle-income countries (Brazil, India, China, Indonesia) account for most of the CE-related employment, especially in agriculture and food sectors.
- Direct CE jobs are concentrated in food processing (developing regions) and basic metals (developed regions); indirect jobs are driven by agriculture and wholesale trade.
- Globally, 58% of CE jobs are informal, and 83% are unskilled.
- Female workers hold around 1.47 million CE jobs, though they are underrepresented in indirect employment.
- Youth employment remains low; CE jobs mostly benefit adult male workers.
- The labour intensity per unit of CE export is higher in developing countries due to lower productivity and more manual work.

Conclusions

This study offers the first comprehensive estimate of employment embedded in CE trade, revealing that even a marginal share of trade can generate significant labour impacts—especially in informal, low-skilled, and upstream sectors. However, the analysis also uncovers major challenges:

- CE employment is disproportionately informal and lacks quality standards.
- Many countries remain excluded from circular trade due to structural, technological, or statistical constraints.

To address these issues and improve the accuracy and policy relevance of future analyses, the report suggests expanding employment datasets to allow deeper disaggregation by product, region, and sector—especially in low-income economies.

Contact us for the full report and more information: EMPINVEST@ilo.org

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