Designing Better Circular Economy Policies

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ETUC Circular Economy Conference
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Context: Global material extraction

Source: UNEP & IRP, 2018
At the same time, poverty, unemployment, inequality rising...
To convince the ‘non-converted’
circular policies must achieve social
and economic outcomes

Circular policies...
• Transport
• Electricity
• Buildings
• Industry
• Agriculture
• Waste

...which have positive social &
job outcomes!

• Maximise job creation
• Protect job loosers
• Reduce poverty &
inequality
• and other
Governement targets!

Just Transition
A global circular economy scenario in a multi-regional input-output framework

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Guillermo Montt & Marek Harsdorff (ILO)
Global Circular Scenario 2030

Potential job growth

Risk of job destruction

- 22 million jobs could be destroyed if workers are not reskilled into new occupations

49 million jobs could be reallocated

Job creation potential

78 million jobs need training

29 million new jobs need reskilling and upskilling to reallocate within same occupations in growing industries

49 million jobs could absorb laid-off workers
Job growth by occupations

15.6 Sales workers
10.4 Metal, machinery and related trades workers
4.3 Science and engineering associate professionals
3.7 Drivers and mobile plant operators
3.3 Electrical and electronic trades workers
3.2 Labourers in mining, construction, manufacturing and transport
2.9 Stationary plant and machine operators
2.8 Business and administration associate professionals
2.7 Building and related trades workers, excluding electricians
2.7 Science and engineering professionals
2.0 Refuse workers and other elementary workers
1.9 General and keyboard clerks
1.8 Market-oriented skilled agricultural workers
1.7 Food-processing, wood-working, garment and other crafts
1.7 Business and administration professionals
1.6 Numerical and material recording clerks
Sectoral contribution to total difference between scenarios

<table>
<thead>
<tr>
<th>Sector</th>
<th>Total</th>
<th>Wage</th>
<th>Capital</th>
<th>Low-skilled male</th>
<th>Low-skilled female</th>
<th>Medium-skilled male</th>
<th>Medium-skilled female</th>
<th>High-skilled male</th>
<th>High-skilled female</th>
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<tbody>
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<td>Construction</td>
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<td>Manufacturing</td>
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<td>Utilities</td>
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<td>Renewables</td>
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<td>Mining</td>
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<td>Agriculture</td>
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</tbody>
</table>

Value added

Employment

No change in global Value added

-80%

-60%

-40%

-20%

0%

20%

40%

60%

80%
Job change by gender

-59
-12
24
54
First Step: Build your own national model!

✓ ILO open source Training Guide

✓ Based on national data and needs

✓ Capacity building to run national model

✓ Enact fiscal tax reforms, skills, enterprise and social protection policies

✓ Ensure Decent Work
Policy Recommendations

1. Fiscal policy tax reform: Reduce labour & increase material tax (double-dividend)
2. Social Recycling Policy: Contract COOP
3. Investment in Skills and Enterprise Development
4. Sector policies (Renewable, Green Ag, etc)
5. Social Protection Systems

Social Dialogue as basis of policy making

Just Transition Guidelines ILO
Example Brazil

• 2010 National Law on Solid Waste give municipalities responsibility to work through COOPs in waste picking and recycling and to ensure decent work

• 1,300 waste-pickers’ cooperatives in Brazil
• COOPs do 90% of recycling in Brazil
• [ILO](https://www.scielo.br/scielo.php?pid=S0104-12902014000100146&script=sci_arttext&tlng=en) support in Safety & Health in COVID response

Thank you
Annex
Transition to a green economy

• “results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities” (UNEP 2011)

• Modelling global economy-wide changes
  – Global multi-regional input-output model (MRIO)

• Scenario Analysis
  – Baseline: IEA Energy Technology Perspectives (ETP) 6-degree
  – Alternative Scenario: Circular economy
    • Recycling
    • Resource efficiency
    • Re-use and repair
Modelling approach and data

- **44 countries + 5 regions**

- **Multi-regional supply-and-use tables**
  200 products x 163 industries

- **Primary and secondary material producing industry**

  1. Wood material
  2. Pulp
  3. Plastic
  4. Glass
  5. Steel
  6. Precious metals
  7. Aluminum
  8. Lead, zinc, tin
  9. Copper
  10. Other non-ferrous metals
  11. Bottles
  12. Construction materials

- **1330 Environmental and socio-economic extensions**
  - Extraction of materials:
    7 forestry products, 11 fossil fuels, 12 metal ores, 8 non-metallic minerals
  - Employment: by gender and 3 skill levels
  - Value Added: Capital and Compensation of Employees
Modelling approach and data

• A simple forward looking model of Exiobase

• Not a forecasting tool for the world economy

• MRSUT calibrated to meet the specifications of already existing scenarios e.g. IEA EPT, RCP or SSP
  • With more industry and product detail
  • Changing final and intermediate demand structure
  • Representation and calculation of direct and indirect effects

• Exogenous implementation of changes
  • Leontief et al (1977) The future of the world economy
## Scenario specifications

<table>
<thead>
<tr>
<th></th>
<th>BAU – IEA ETP 6 degree scenario</th>
<th>Circular economy scenario</th>
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</thead>
<tbody>
<tr>
<td><strong>Final demand</strong></td>
<td>Household consumption according to AIDS model, Investment in renewable energy technologies</td>
<td>Assumption that production capacity grows commensurate to recycling levels and becomes available</td>
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<tr>
<td><strong>Input coefficients of technology production</strong></td>
<td>Machinery and equipment, electrical machinery and apparatus</td>
<td></td>
</tr>
<tr>
<td><strong>Input coefficients of technology use</strong></td>
<td>Shares of electricity types and development of energy efficiency according to IEA ETP 6-degree scenario</td>
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</tr>
<tr>
<td><strong>Market shares in supply table</strong></td>
<td>Constant</td>
<td>Change in market shares from primary to secondary material producing industries (linear to a cap of 65%)</td>
</tr>
</tbody>
</table>
Market shares of primary and secondary material processing industries
Reduction in trade in embodied materials

**Fossil fuels**
- P Americas to C Americas
- P Asia to C Asia
- P Europe to C Europe
- P ME Afr to C ME Afr

**Metal ores**
- P Americas to C Americas
- P Asia to C Asia
- P Europe to C Europe
- P ME Afr to C ME Afr

**Non-metallic minerals**
- P Americas to C Americas
- P Asia to C Asia
- P Europe to C Europe
- P ME Afr to C ME Afr

**Forestry products**
- P Americas to C Americas
- P Asia to C Asia
- P Europe to C Europe
- P ME Afr to C ME Afr
Limitations & opportunities

• Exogenous modelling of changes
• Introduction of dynamics
  – Development of theory corresponding to data availability
• Analysis of uncertainties
  – Indirect effects do not increase material extraction
    → rather certain
  – Positive employment effect
    → quite uncertain (small overall effect, large variation across countries and industries)
• Future footprints strongly depend on trade modelling

• The circular economy (as modelled here) seems to at least as sustainable than the BAU