Jobs and the green transition

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‘Green’ growth: potential

• Fiscal stimulus in the short run: more jobs

• Correction of market failures in the short to medium run e.g. less pollution leading to a healthier, more productive labour force

• Wave of innovation and competition in the medium to long run

• Loosening of the energy resource straightjacket in the long run
Size of impact

- Green jobs around 1.7% of total paid employment in Europe (EC, 2007) on OECD/Eurostat definition of the environmental goods and services industry
- 0.25% of global employed labour force of c. 1.8bn on UNEP ‘green jobs’ definition? Jobs in renewables from 2.3m in 2006 to 20m in 2030? (UNEP, 2008)
- ‘Clean energy economy’ 0.5% of US jobs (Pew, 2009)
- Environment industry responsible for 1.6% of Korean employment directly and indirectly (GGGI, 2011)
Employment projections

Growth of the green economy and the ideas economy; contraction of carbon-intensive sectors

Source: OECD Employment Outlook 2012
Job gains and losses

Ambitious green policies likely to create and destroy similar job types

Source: OECD Report to the G7 Environment Ministers, June 2017
Potential for job creation varies widely

### Korean green fiscal stimulus

<table>
<thead>
<tr>
<th>Spending item</th>
<th>Total Employment Increase</th>
<th>Total Planned Spending (US$ m)</th>
<th>Employment Increase/US$ Bn Added Expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mass transit</td>
<td>138,000</td>
<td>7,005</td>
<td>19700</td>
</tr>
<tr>
<td>Energy conservation</td>
<td>170,000</td>
<td>5,840</td>
<td>29100</td>
</tr>
<tr>
<td>Vehicles and clean energy</td>
<td>14,300</td>
<td>1,490</td>
<td>9600</td>
</tr>
<tr>
<td>Env friendly living space</td>
<td>10,800</td>
<td>350</td>
<td>30900</td>
</tr>
<tr>
<td>River restoration</td>
<td>200,000</td>
<td>10,500</td>
<td>19000</td>
</tr>
<tr>
<td>Forest restoration</td>
<td>134,000</td>
<td>1,750</td>
<td>76600</td>
</tr>
<tr>
<td>Water resource management</td>
<td>16,000</td>
<td>685</td>
<td>23400</td>
</tr>
<tr>
<td>Resource recycling</td>
<td>16,000</td>
<td>675</td>
<td>23700</td>
</tr>
<tr>
<td>Green information</td>
<td>3,000</td>
<td>270</td>
<td>11100</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>703,000</strong></td>
<td><strong>28,600</strong></td>
<td><strong>24600</strong></td>
</tr>
</tbody>
</table>

Source: Barbier (2009).
Green power more labour-intensive?

Energy efficiency measures, solar PV more labour intensive; coal and natural gas the least labour intensive.

Great uncertainty

Models differ on the job creation potential of green technologies: example of wind power in India

Figure 1 Employment Potential for High Growth Scenario

Source: TERI (2010)
The problem of emissions-intensive industries

Seven industries account for over 80% of pollution in the OECD - but they account for less than 10% of employment:

- Air transport
- Water transport
- Electricity, gas and water supply
- Coke, refined petroleum products and nuclear fuel
- Land transport
- Basic metals
- Other non-metallic mineral products
More skilled jobs?

- **Pollin, Heintz and Garrett-Peltier (2009):**
  - Green energy investment: 47.5% ‘low-credentialed’ jobs;
  - Fossil fuel investment: 41.5% ‘low-credentialed’ jobs.
- **Consoli et al. (2015):**
  - Green jobs use high-level abstract skills significantly more than non-green jobs;
  - Green occupations exhibit higher levels of education, work experience and on-the-job training.
Net versus gross job creation

- Importance of economy-wide adjustment to the green policies applied:
  - Macro level constraints on employment growth
  - Spending on low-carbon public infrastructure
  - Support for green industries: investment, output and R&D
  - Carbon pricing
- Switch from resource-based consumption (agriculture, energy, manufacturing) towards knowledge-based consumption (services)
Conclusions

• Transition to green growth
  • Necessary
  • Feasible
  • Attractive
  • Potential benefits for employment
    • More labour demand
    • Healthier, more productive workforce
Conclusions

• BUT:
  – Not by itself a solution for labour market problems
  – ‘Green jobs’ difficult to define
  – Scope for creation of ‘green jobs’ and replacement of ‘brown jobs’ depends on good complementary policies being put in place: *industrial strategy*
  – Importance of thinking through consequences for cost of living and income distribution
Some reading suggestions

Opportunities in the ‘green race’

- Innovation and comparative advantage
  - Countries:
    - The manufacturing sectors of Japan and to a lesser extent Germany seem best positioned to take advantage of the green shake-up
    - Italy’s manufacturing sector has the worst statistics and could fall behind in the green race
    - There are also question marks (based on our 2005–07 snapshot) about China
    - In the UK, green innovation is concentrated, perhaps strategically, in the energy intensive industries

Source: Fankhauser et al (2013): ‘Who will win the green race? In search of environmental competitiveness and innovation’
Opportunities in the ‘green race’

- **Innovation and comparative advantage**
  - Sectors:
    - The green economy is much broader than the few flagship sectors (e.g. clean energy and clean cars) on which the debate tends to focus.
    - There are areas of green entrepreneurship and innovation across the manufacturing sector, including in areas such as machinery and consumer goods and on important issues like resource efficiency and waste management.

Source: Fankhauser et al (2013): ‘Who will win the green race? In search of environmental competitiveness and innovation’