Assessment of Japan’s Emission Trading Initiatives: Effectiveness, Efficiency and Concern on the Carbon Leakage

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1. Effectiveness
1. Effectiveness

**Born to be ineffective?**

- Voluntary, not stringent and no penalty
- No verification of emissions needed if the regulated companies will not sell the allowance
- Questionable (?) quality of the domestic offsets
- Only JVETS and J-VER keep the integrity
2. Efficiency
2. Efficiency

Born to be inefficient?

- Free allocation
- Intensity target
- Up-dating of the allocation
- Price control (guidance?) by the government
- Competition between domestic credits
3. Value at stake in Japan
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Impacts of ETS on Industrial Sector (case of Japan)

VAS and GDP

\[ \text{CO}_2 \text{ at } 1500 \text{ JPY/ton} \]

Source: Asuka and Kanemoto (2008)
3. Value at stake in Japan

Impacts of ETS on Industrial Sector (case of Japan)

VAS and trade intensity

CO$_2$ @ 1500 JPY/ton

Source: Asuka and Kanemoto (2008)
3. Value at stake in Japan

Impacts of ETS on Industrial Sector (case of Japan)

VAS and GDP

$\text{CO}_2 @ 2000 \text{ JPY/ton}$

Source: Asuka and Kanemoto (2009)
3. Value at stake in Japan

Impacts of ETS on Industrial Sector (case of Japan)

VAS and trade intensity

\[ \text{CO}_2 \text{@ 2000 JPY/ton} \]

Source: Asuka and Kanemoto (2009)
4. Price difference and Trade pattern: case of steel
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Will carbon leakage really happen?

Case of flat steel (1998-2007)

1. Japan’s competitors are Korea, Taiwan, and China
2. So far, no clear relationship between price difference and trade pattern

Price difference (domestic price - import price), export ratio and import ratio

Domestic production, import from abroad

Export from Japan

Source: Asuka and Kanemoto (2008)
5. China specific factors
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Rapidly changing economical/political/business environment

- Energy conservation
- Voluntary self-restriction on export
- Economic integration in the Asian region
### 5. China specific factors

#### Efficiency: Better than Japan’s average

Comparison of the energy intensity among steel making plants both in China and in Japan (MJ/ton, as of 2004)

<table>
<thead>
<tr>
<th></th>
<th>Energy consumption intensity</th>
<th>Cokes making process</th>
<th>Sinter making process</th>
<th>Iron making process</th>
<th>Steel making process with converter</th>
<th>Casting process with rolling mill</th>
</tr>
</thead>
<tbody>
<tr>
<td>① China big enterprises</td>
<td>20.64</td>
<td>4.16</td>
<td>1.94</td>
<td>13.65</td>
<td>0.99</td>
<td>2.72</td>
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<tr>
<td>② China small enterprises</td>
<td>30.59</td>
<td>6.71</td>
<td>3.18</td>
<td>17.32</td>
<td>2.20</td>
<td>8.40</td>
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<tr>
<td>③ China best enterprise</td>
<td>17.45</td>
<td>2.58 (Bao steel)</td>
<td>1.52 (Hanzou steel)</td>
<td>11.57 (Bao steel)</td>
<td>-0.11 (Wuhang steel)</td>
<td>1.57</td>
</tr>
<tr>
<td>④ Japan average</td>
<td>19.20</td>
<td>2.78</td>
<td>1.55</td>
<td>11.59</td>
<td>-0.08</td>
<td>1.81</td>
</tr>
</tbody>
</table>

Differences inside of China

- ② - ①: 9.95
- ② - ③: 13.14
- ① - ③: 3.19

Differences between Japan and China

- ① - ④: 1.43
- ② - ④: 11.39
- ③ - ④: -1.76

5. China specific factors

Effects of the voluntary self-restriction

Change of the steel export ratio of China

Source: Peterson Institute (2008)

Source: China General Customs Administration and CEIC
6. Conclusion
Bumpy ride ahead...be optimistic!

- Substantial infrastructure has been built
- Post-2012 target is crucial for the real implementation/improvement
- Domestic constituency is still problematic
- Myth of carbon leakage?
- Methodology for the benchmarking