Economic Impacts of Climate Change- Financial Implications

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Reasons to concern
Changes in Greenhouse Gases from ice-Core and Modern Data

Source: IPCC
Multi-model Averages and Assessed Ranges for Surface Warming

Global surface warming (°C)

Year

1900  2000  2100

Source: IPCC
From Emissions to Impacts

- Human activities
  - Emissions
  - Emission concentrations
  - Radiative Forcing
    - Temperature/ Climate Change
      - Impacts

Feedback Effects
# Impacts of climate change

## Damages
- Buildings
- Infrastructure
- Agriculture
- Health
- Insurances

## Adaptation
- Tourism
- Agriculture
- Health
- Households
- Energy

## Energy Costs
- Energy (supply disruptions, price variation)
- Households
- Energy intensive firms
- Transportation
Economic Damages of Climate Change

- Natural Scientists
- Environmental Scientists
- Social Scientists
- Nordhaus
- Tol
- Kemfert-high
- Kemfert-low
- Stern
## Affected Sectors

<table>
<thead>
<tr>
<th>Sector</th>
<th>Description</th>
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<tbody>
<tr>
<td>Health</td>
<td>Through Heat Waves, Storms, Flooding caused Health impacts</td>
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<tr>
<td>Agriculture</td>
<td>Reduced crop gains, reduced gain security through increased climate variability</td>
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<tr>
<td>Forestry</td>
<td>Increased vulnerability of non compatible tree types; increased danger of forest fire</td>
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<tr>
<td>Water</td>
<td>Increased danger of floods (winter/spring) and low water (summer)</td>
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<td>Biodiversity</td>
<td>Biodiversity hazard</td>
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<tr>
<td>Transportation</td>
<td>Impairment of air traffic because of air streams; and inland water navigation (low water)</td>
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<tr>
<td>Tourism</td>
<td>Sift of tourist areas (See/Alps)</td>
</tr>
<tr>
<td>Energy</td>
<td>Cooling disturbances (low water) ; grid (ice/storms)</td>
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<tr>
<td>Finance</td>
<td>Higher direct costs of liabilities of insurance companies ; speculation</td>
</tr>
</tbody>
</table>
Energy Costs:

- Supply disruption (not enough cooling water, hurricane, ice,)
- Price variations
- Increase CO2 free technologies (late start- higher costs)
- Increase of R&D expenditures
Policy Options

1. **Climate Protection:**
   - Emissions trading/Eco Taxes
   - Motor vehicle tax (CO2)
   - Promotion renewable energy /CHP
   - International climate protection: Inclusion USA/China

2. **Adaptation:**
   - Coastal Zone Management
   - Different cultivation methods in agriculture
   - Tourism (from ski to hike etc)
   - Heath funds
Thank you very much for your attention!

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