NATIONAL ECONOMIC EDUCATION DELEGATION

Climate Change Economics

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Green Economy Meetup

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National Economic Education Delegation

- **Vision**
  - One day, the public discussion of policy issues will be grounded in an accurate perception of the underlying economic principles and data.
- **Mission**
  - NEED unites the skills and knowledge of a vast network of professional economists to promote understanding of the economics of policy issues in the United States.
- **NEED Presentations**
  - Are **nonpartisan** and intended to reflect the consensus of the economics profession.

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  - It is, however, inevitable that the presenter will be asked for and will provide their own views.
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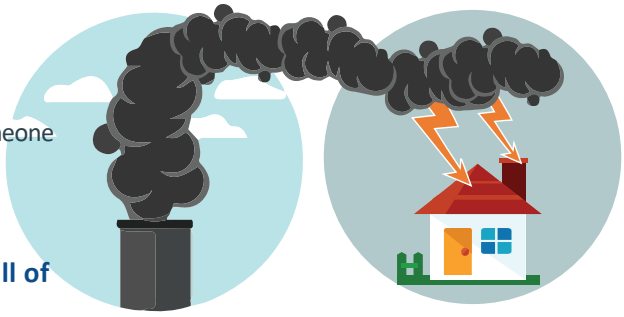
Electricity Is Different From Oranges

- **Many sources of electricity generate pollution.**
- **Pollution is an EXTERNALITY:**
  - a side effect (cost or benefit) that affects someone else when something is bought or sold.
  - This is a ***market failure.***
- **The price of electricity does not reflect all of the costs.**
  - Electricity is too cheap.
  - There is too much pollution.



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Social Cost of Carbon

- Cost above price paid.
- The expected cost of damages from each unit of greenhouse gas emissions.
- Current EPA estimate: ~$40 per metric ton of CO_2.
  - About $123/car per year.
  - $26 Billion for all vehicles in the US.
- Social cost of carbon will increase over time.

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How These Impacts Affect Humans

- Agriculture
- Fisheries
- Coastal damages
- Direct health effects, including sickness and death (temperature & drought; also pollution)
- Indirect health effects (vector-borne disease)
- Reduced freshwater availability
- Wildfires
- Shifting zones for important ecosystems, and desertification
- Reduced worker productivity
- Increased violence
- Some of these may cause human migration and/or conflict

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Cost-Benefit Analysis

- **COST:** Most economic models suggest the costs of keeping warming below 2°C are relatively small.
  - Cost of acting: **1-4% of GDP by 2030**
- **BENEFIT:** Costs of acting to keep warming below 2°C are almost certainly less than future economic damages they would avoid.
  - Cost of not acting: **7 - 20% of worldwide GDP**

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Policies That Reduce Emissions

- **Regulation**
  - Emissions standards or limits
    - E.g., CAFE standards
- **Market-oriented policies**
  - Putting a price on emissions
    - Subsidizing green energy (*e.g.*, feed-in tariffs)
    - Tax or cap & trade
- **Indirect policies**
  - Land use policies
  - Green R&D subsidies

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Prescription

- **We are going to need some of each option.**
- **Regulations vs Pricing**
  - Pricing has an enormous efficiency advantage.
  - Pricing won't effectively hit some parts of the economy.
- **Land use and other policies**
  - Address other impediments to aspects of the economy.
  - Reinforce regulations and pricing policies.

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Sweden's Carbon Tax Policy

Started in 1991

$140/ton

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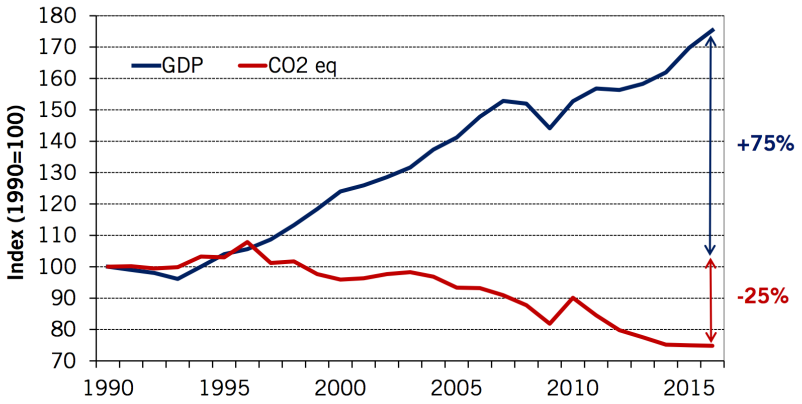
Real GDP and Domestic CO_2eq Emissions[1] In Sweden, 1990-2016



[1] In accordance with Sweden's National Inventory Report, submitted under the UNFCC and the Kyoto Protocol. CO_2 = approx. 80 % of total CO_2eq emissions. Preliminary data for 2016.

Sources: Swedish Environmental Protection Agency, Statistics Sweden

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Summary

- **We need to reduce emissions to balance the costs of action against the costs of inaction.**
- **Scientists and the IPCC recommend that we work to keep warming below 1.5 degrees Celsius.**
  - ***Economists believe that this goal is well worth the costs!***
- **Many policy options available to us:**
  - **Some have better efficiency properties than others. Ie, lower cost.**
  - **Whatever we do, we should do it sooner rather than later!**

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Thank you!

Any Questions?

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