ENVIRONMENTAL ECONOMICS

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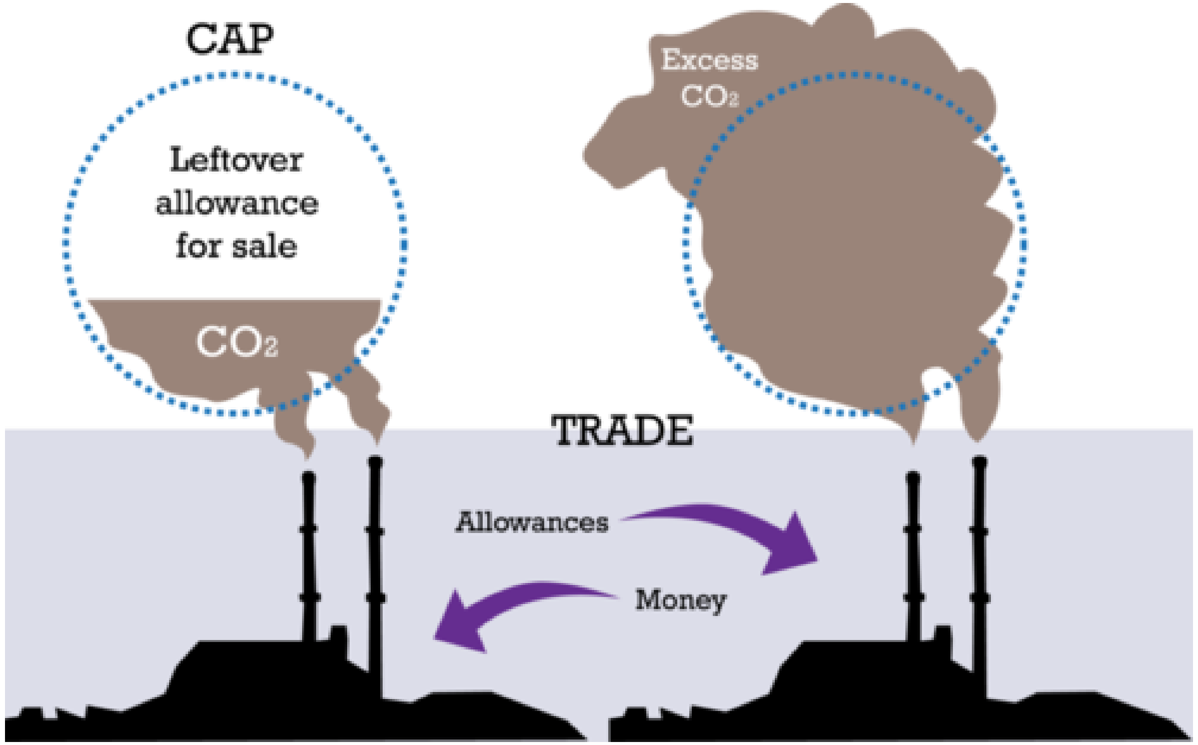
CAP AND TRADE MARKET

- Market based, government approach to controlling pollution
- Provides economic incentive for businesses to reduce their emissions
- Permits issued for varying levels of pollution (ex. one ton of CO_2)
  - Number of permits are capped by regulators, businesses are able to sell and trade permits at market determined price

CAP AND TRADE MARKET

- If a business pollutes less than the amount dictated by their permit, they are free to sell their permits on the open market.
- Economic benefit of reducing emissions as they can be sold for a return on investment.
- Number of total permits on the market decreases over time.



CAP AND TRADE MARKET

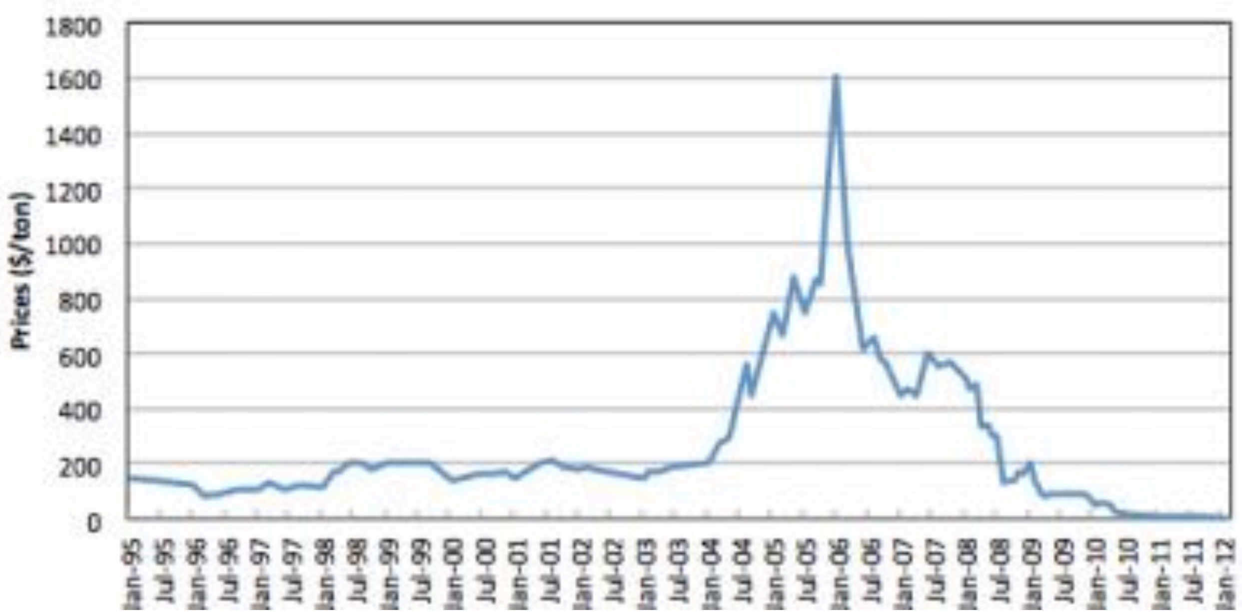
- Goal of cap and trade is to reduce overall emissions produced by industry
- Cap and trade is generally liked by business over a total control method by governments
- Market based approach makes allowances economically viable in an always changing climate
- Market is able to adjust to the needs of the industry with little to no government intervention.

SO_2 MARKET IN THE UNITED STATES

- Sulfur Dioxide is released into the air by industries such as power generation and manufacturing
- Heavy particulates of SO_2 creates health and environmental issues
  - SO_2 heavily contributes to the production of acid rain which damages property
- Program began in 1995 to regulate the amount of SO_2 allowed to be released into the atmosphere

COLLAPSE OF THE US SO_2 MARKET

- Later years of the program saw large fluctuations in the price per ton of SO_2
- Increase in demand for electricity resulted in increased emission from coal fired power plants
  - Coal fired power plants create large amounts of SO_2
  - Increased demand of permits quickly increased prices to $1600 per ton



COLLAPSE OF THE US SO_2 MARKET

- EPA decision in 2005 to expand cap and trade market and regulate more industries was met with backlash.
- U.S. Court of Appeals ruled that the EPA had overstepped its authority in expanding market which resulted in the need to rewrite cap and trade rules for SO_2
- Due to this uncertainty, prices collapsed from their $1600 per ton high to about $130 per ton.
- Low economic benefit of reducing output due to cheap permit prices resulted in industries putting clean emission projects on hold and trading virtually stopped.
- Market failed to rebound and demand for permits was sharply below what it once was.

EUROPEAN CARBON MARKET

- Began in 2005 to regulate carbon emissions throughout the European Union
- Market based approach in buying and selling carbon allowances
- Covered 11,000 different factories and power generating stations
  - Industries were to monitor the amount of carbon released
  - If the amount of carbon released was higher than the allotted amount, more allowances were to be purchased from the market

EUROPEAN CARBON MARKET

- By 2008, prices were high enough to incentivize industries to invest in cleaner technologies which reduced their carbon emissions
- The sold emissions allowances brought in money and lowered the total investment cost in cleaner technology.
- Total number of allowances was to decrease each year, as it was expected that industries would lower their emissions due to the high cost of allowances.

COLLAPSE OF THE EUROPEAN CARBON MARKET

- Later half of 2008 saw decrease in manufacturing and other industrial processes
- Lower demand – due to less activity and companies investing in cleaning technology resulted in surplus of allowances
- Program was set to regulate 16 billion tons of carbon, but had a surplus of 1.5 billion tons of unused allowances

Source: Thomson Reuters Point Carbon

COLLAPSE OF THE EUROPEAN CARBON MARKET

- Prices plunged due to surplus
- European Parliament failed to pass legislation to decrease the number of allowances on the market, due to influence of heavily polluting countries.
- Carbon reached a new all time low of $3.60 per ton
- Program rules never established a price floor which allowed the price per ton to decrease to such low levels.

PARIS ACCORDS

- 2015 United Nations Climate Change Conference in Paris, France
- Global initiative to limit global emissions and reduce the global temperature increase
- Calls for zero emissions during later half of 21st century
- Goal of limiting global temperature increase to 2° C compared to pre-industrial era

PARIS ACCORDS

- Nations will need to establish regulation in order to meet targets of the agreement
- Agreement must be ratified by nations totaling 55% of global emissions to be considered law
- US and China, the largest producers played a heavy role in establishing the agreement
- US agreed to cut emissions to 28% of 2005 levels by 2025

POTENTIAL ISSUES WITH IMPLEMENTATION OF PARIS ACCORDS

- Businesses around the globe must be incentivized to reduce their emissions
- Could be done similar to carbon markets in Europe and SO_2 market in US
- Failure to establish a functional program could lead to market collapses similar to what has been seen in the past.
- Demand must remain strong for permits in order for prices to be high enough to incentivize the investment into clean technology by businesses – reducing emissions
- Governments could provide tax credits for businesses that invest in clean technology

POTENTIAL ISSUES WITH IMPLEMENTATION OF PARIS ACCORDS

- Uncertainties such as global recessions could reduce manufacturing and therefore demand for emissions allowances
- Market must have price floor to prevent rapid decent of allowance prices.
- Industries must be held accountable for self monitoring of carbon emissions in order to enforce the purchase of allowances.
- Lack of enforcement could lead to lack of purchase of allowances and increased emissions

POTENTIAL ISSUES WITH IMPLEMENTATION OF PARIS ACCORDS

- In order to meet goals, all countries must work to reduce emissions
- Third world and other countries with weak governments will have problems enforcing rules.
- Increased cost of production could put some manufacturing firms out of business
- New regulations could stunt growth in developing economies in Africa and Asia, leading to possible wide spread economic issues