Rethinking the environmental state: An Economic History of the Swedish Environmental Kuznets Curve for carbon

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Fig 1. Carbon intensities after country in 2005. Carbon/GDP

This is what the generally politically interested person in Sweden have a rough idea about
Fig 2. National per capita carbon dioxide emissions (Kg per person) and carbon dioxide intensity. Sweden 1950-2005.

Increasing emissions
1950 to 1970

Decreasing emissions
1970-2014

A typical Environmental Kuznets Curve shape
Aim

Why does Sweden have a EKC-shaped carbon emission path, while most other countries has not?

Understanding context of the policy and investments decisions that led to cuts in Swedish carbon emissions prior to the active climate politics
The dependency on oil in the early 1970’s

• Heavy dependency on imported oil
• Ready-to-go Civil nuclear program (planning immediately after WW II)
  • First large commercial reactor in late 1972
  • Official investigation (SOU 1956:46): Oil and coal generated electricity would first need to expand before nuclear power would be an option
• Development of (oil based) district heating from 1948
• More private cars, demand for petrol (made in Swedish refineries) increased domestic supply of heavy fuel oils (as by-products from refineries) for domestic heating
The Path towards Climate policy

• A first step of the swedish nuclear power program was the idea of a swedish nuclear weapon

The SAAB 36 nuclear bomber. Windtunnel model around 1955.

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The Swedish oil intensity (Oil/Capita) were among the highest in the Western World in 1973

By 1991 it was close to the average which implies a high percentual decrease

**Fig 2. The Swedish oil consumption 1960-2000. PJ**

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Oil shapes the Swedish EKC

What about substitutes?

Taxes, yes, but rather modest until the mid-1980s

So what happened?
The economic policy was at stake: powerful state reactions

• The witches’ brew:
  • Negative balance-of-trade
  • Need to raise interest rates to defend the currency
  • Fear of rising unemployment
  • Too low profits in manufacturing keeps investments down

• Not realized by the actors is:
  • Post-war, catch-up growth is over
    • The low productivity growth after 1965 is a trend (not just a business cycle): Need to modernize the real capital stock, restructuring of the export industries
The cure

• First step of the cure is: reduce oil consumption in the export industry:
  • Energy taxes used to finance subsidies
• State supported research and R&D in (foremost) pulp and paper
• Renewal of technology goes hand-and-hand with restructuring: adressing both energy and productivity in a big government led restructurring/close-down plan
• Use nuclear: electricity for space heating
Reduced consumption of oil in manufacturing sets the scene for the great devaluation in 1982

**Fig 7. Oil Consumption in the Swedish Manufacturing Industry 1973-1990. TJ.**

**Fig 6. The SEK/USD Exchange rate January 1968 to December 1985.**

Oil consumption in the export industry is reduced: prices and subsidies (roughly 20% of total cut): makes it easier to devaluate and kick-start in 1982
Energy and economic policy in the 1980s

• The great devaluation: wage moderation to keep inflation down
• Falling oil prices after 1985 leads to (unpopular) oil tax increases: to keep imports down by dampening Household purchasing power
• Also: the environmental issue comes around as a side-effect of nuclear power. Another path that will converge with the other paths.
The Nuclear power issue

• Criticism already in the early 1970’s
• The Center Party wins the election in 1976
• Three Mile Island 1976 leads to a referendum in 1980:
  • yes (Conservatives, Liberals),
  • no (Center party, communists)
  • responsible decommission in 25 years (Social democrats).
• Conservatives see the social democratic line as an opportunistic betrayal:

“Oil power - No thanks. Use nuclear power!” (Conservative student’s association)
The Carbon Ceiling 1988

- (S) back in government in 1982
- Plans to shut down two reactors and replace with gas and coal
- Conservative retaliation on (S): runs over the government (with all other parties) and introduces a carbon ceiling in 1988
- Plans on coal and gas is abandoned
The Carbon tax in 1991

• A green party has evolved from the Campaign against Nuclear Power
• The Conservatives (who never had an environmental policy) picks up the idea on Pigouvian Taxes. This one lays dead in the water.
• A big tax reform is however discussed throughout the 1980s: broad parliamentary agreement (without the Greens and the Communists)
• Here, the carbon tax comes in handy as the carbon ceiling (which has already done the job) can be removed. The carbon tax is motivated as a mean “to broaden the tax base”.

Main points

• The energy system transformations creating a low carbon intensive economy and an EKC-shaped carbon emission curve were driven by state core interests: national security and macro economic stability.
• Both are to be seen in specific historical contexts: the cold war and the fixed exchange rate regime
• The introduction of the carbon tax should be seen not as a first step for others to follow, but as the result of a chain of political decisions with more short-term objectives
• Driving forces behind contemporary energy system transformations are weaker than in the 1970s and 1980s since state core interests are not at stake
The 2000’s

• 2002 Waste disposal ban: more waste used as fuel

• 2003 Green certifactes (subsidy system for wind and biofuel)
  • Critics: what’s the point in adding more carbon free energy to an already carbon free energy system? and IF you cut emissions, they will only move to somewhere else due to the EU-ETS

• 2005: EU-ETS (affects industries previously not paying carbon tax)

• 2008: Environmental car subsidy (tax reduction around 1000-2000 pounds)

• 2015: With Germany, UK, Denmark & Netherlands: Cancellation of 634 million tons of emission permits in the EU-ETS