Other green taxes than on energy/GHG in Denmark

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Jens Holger Helbo Hansen
Danish Ministry of Taxation

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Denmark

Population:	5.8 million		
Area:	43,000 km2		
GDP (2019):	2,335 billion DKK = 313 billion EUR = 350 billion USD		
GDP/inhabitant:	401,400 DKK = 53,800 EUR = 60,200 USD		
Total tax revenue:	1,089.2 Billion DKr. = 46.6 pct. of GDP		
Budget balance % of GDP:	2019 +3.8,	2020 -3.9	2021 -2.4
Growth %:	2019 +2.3	2020 -4.5	2021 +4.2
Inflation %:	2019 +0.8	2020 +0.3	2021 +1.2
Unemployment %	2019 3,4	2020 4.8	2021 4.4

Green taxes in Denmark

1.Taxes on fuels, power, GHG (CFC, CO2):	5.94 billion $ = 1,70 pct. of GDP
2. Taxes on vehicles (annual and new cars):	4.95 billion $ = 1,41 pct. of GDP
3. Other green taxes:	0,55 billion $ = 0,16 pct. of GDP
Total green taxes:	11,43 billion $ = 3,27 pct. of GDP

Many sorts of emissions and pollution etc are taxed + High tax rates

+High GDP/inhabitant + Green taxes work

= Normal EU revenue in % of GDP

Policy principles

Rates should be equal to highest of external cost for Danes or what is necessary to fulfill obligations

Rates should be equal for households and business etc.

If the tax has unwanted effects on income distribution do not try to fix it with different green tax rates but by adjusting income tax structure

Green Pigou taxes are good taxes as the social cost of distortion is lower than the benefit of fewer external costs.

Vehicle taxes because of external cost (air pollution, accidents, noise, congestion/cost building roads

Denmark undertake a more ambtiuos GHG policy than obliged too.

In 2030 GHG has to be reduced with 70 % compared with 1990

Other green taxes than on vehicles and energy, CO2 etc.

Certain retail containers (Soda and Beer cans etc.)

Raw materials (sand, chalk, gravel)

Disposable tableware

Pesticides

Landfill Waste

Piped Water

Waste Water

Carrier Bags

SO2

NOX

+ ++

Pesticides have external costs

The costs are mainly in the form of

I. Health for those employed with using pesticides. Some pesticides might cause irritation of eyes and other result in instant death (if handled improperly). The personal health cost is not an external cost as such, but the cost of the health service inflicted by using pesticides is external

II. Environmental effects (toxicing). Biodiversity. That is killing other species than the pests and weeds for which the pesticides are intended (birds, bees, fish, water plants etc.)

III. Environmental behaviour (general pollution) – persistence, polluting groundwater bioaccumulation.

Too many pesticides are used, if market is not regulated. The price will be below total social cost (private cost + external cost).

The tax is expected to have reduced environmental load by 40-50 %

Taxes on pesticides

Revenue in 2019:	88 million USD = 0.7 pct. of agriculture production = 1.9 pct. agricuture gross factor income
Rates on average:	50 % of value without taxes very differentiated
Tax ratres are:	DKK per kg.

Tax rates are very differentiated according to an index of :

Environmental Harm

Health Risk

Biodiversity

Farmers substitute to those pesticides with lower enviromental load and reduce consumption

Revenue was given back to farmers (Lower taxes on farmland)

Taxes on SO2 and NOx

SO2 and NOx are the major sources of local and regional air pollution.

The pollution contributes to health proplems and early death

The danish tax rates are in principle set according to the external cost inflicted on Danes by Danish emissions or what is necessay to fulfill international obligations

As Denmark is a small country external costs for both Danes and other people in Europe are several times higher.

Tax on emissions of SO2 to air

Rate 2020 : 23,9 DKK/kg S =12 DKK/kg SO2 =3.8 USD/kg S = 1.9 USD/kg SO2

Tax are collected from S in fuels or from emissions of S if emissions are metered

Example of tax

1 t Oil 1 %. S (Sulpur) = 10 kg S = 20 kg SO2

Tax =	38 USD
Import price without taxes	250 USD

Emissions can be reduced by reducing S content in fuels or by removing SO2 from exhaust gasses in big power stations and big industrial plants

Tax on NOx

Tax rate 2020 : 5.2 DKK/kg NOx = 0.82 USD/kg Nox

Tax is collected from emissions of Nox if emissions are metered or by default emmision factor for different fuels

Example of tax:

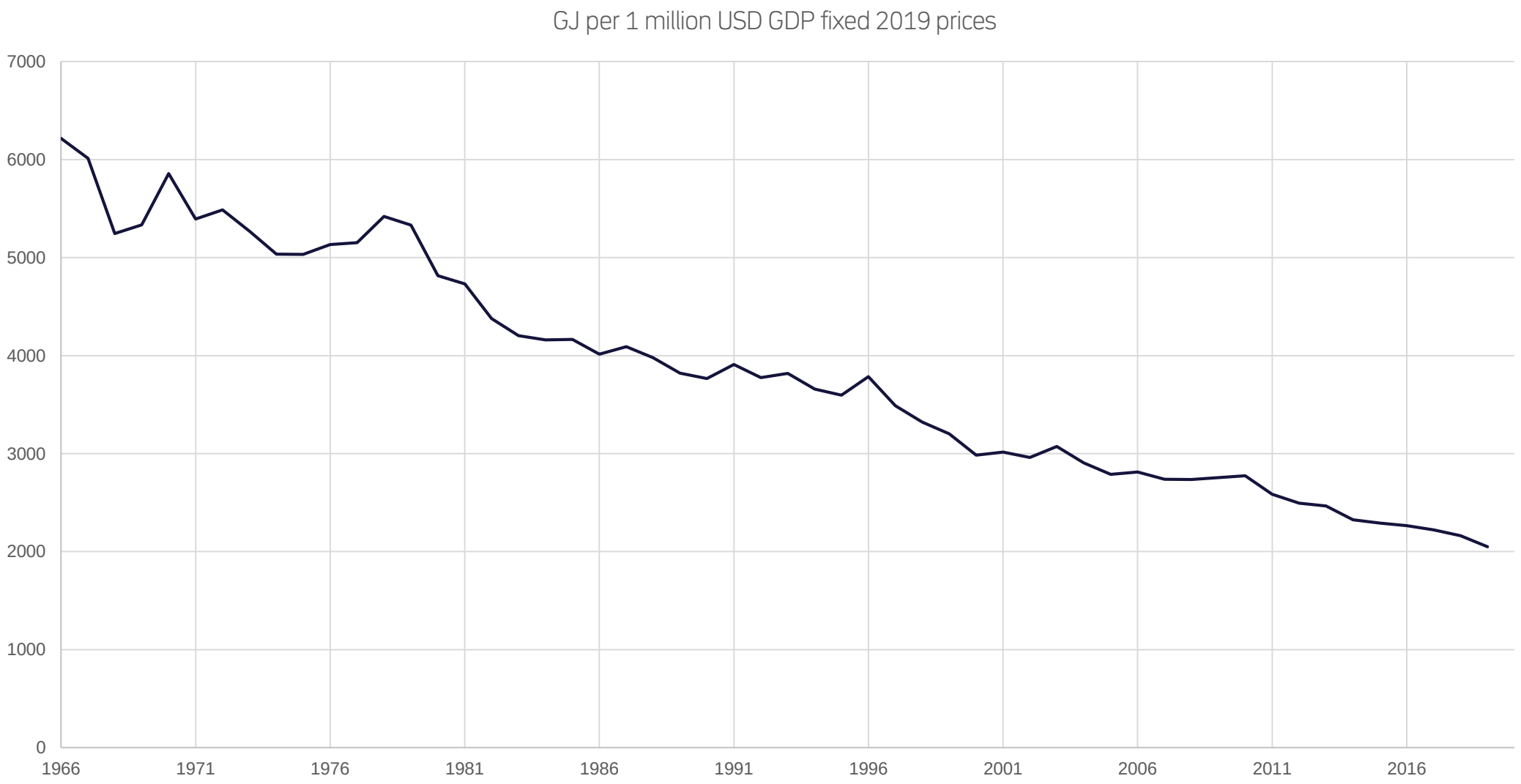
1 GJ Coal default emission factor: 100 g NOx/GJ

Tax is 0.52 DKK/ GJ =0,08 USD/GJ if emissions is not metered

Emissions might be reduced to fx 20 g/GJ if de- NOx of exhaust gasses = tax is 0.016 USD/GJ

Price Coal without tax 4 USD/GJ

Emissions can be reduced by adjusting burning temperature or by de-NOx Equipment etc.


GJ per 1 million USD GDP fixed 2019 prices
7000
6000
5000
4000
3000
2000
1000
0
1966
1971
1976
1981
1986
1991
1996
2001
2006
2011
2016