

Effects of Fuel Prices, Subsidies and Taxes on Fisheries Production and Management

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Background

- ✓ Fisheries is a (high) fuel consumption food production activity
- ✓ Fuel costs are a main cost for fishing fleets.
- ✓ Economic performance of fishing fleets is very dependent on fuel prices.
- ✓ Fisheries fuel prices are often lower than public prices (e.g. tax exemptions).
- ✓ Tax exemptions are often considered a subsidy.

Previous studies on fisheries subsidies

- ✓ FAO & World Bank did some first estimates of global fisheries subsidies.
- ✓ Global fisheries subsidies are estimated to be about \$35 billion (Sumaila et al., 2016).
- ✓ Fuel subsidies are the most common and largest fisheries subsidies (Willman et al., 2009).
- ✓ Fuel fisheries subsidies were about \$7.7 billion in 2009 (Sumaila et al. 2016).

Delineating fuel subsidies

- ✓ Tax exemption approach to estimate subsidies is not fully satisfactory.
- ✓ Because of large differences in taxation levels (& approaches) between countries.
- ✓ Taxes and subsidies can distort production and markets.
- ✓ Low taxation levels behave as subsidies.
- ✓ There is the need to find a common acceptable and sound reference point.

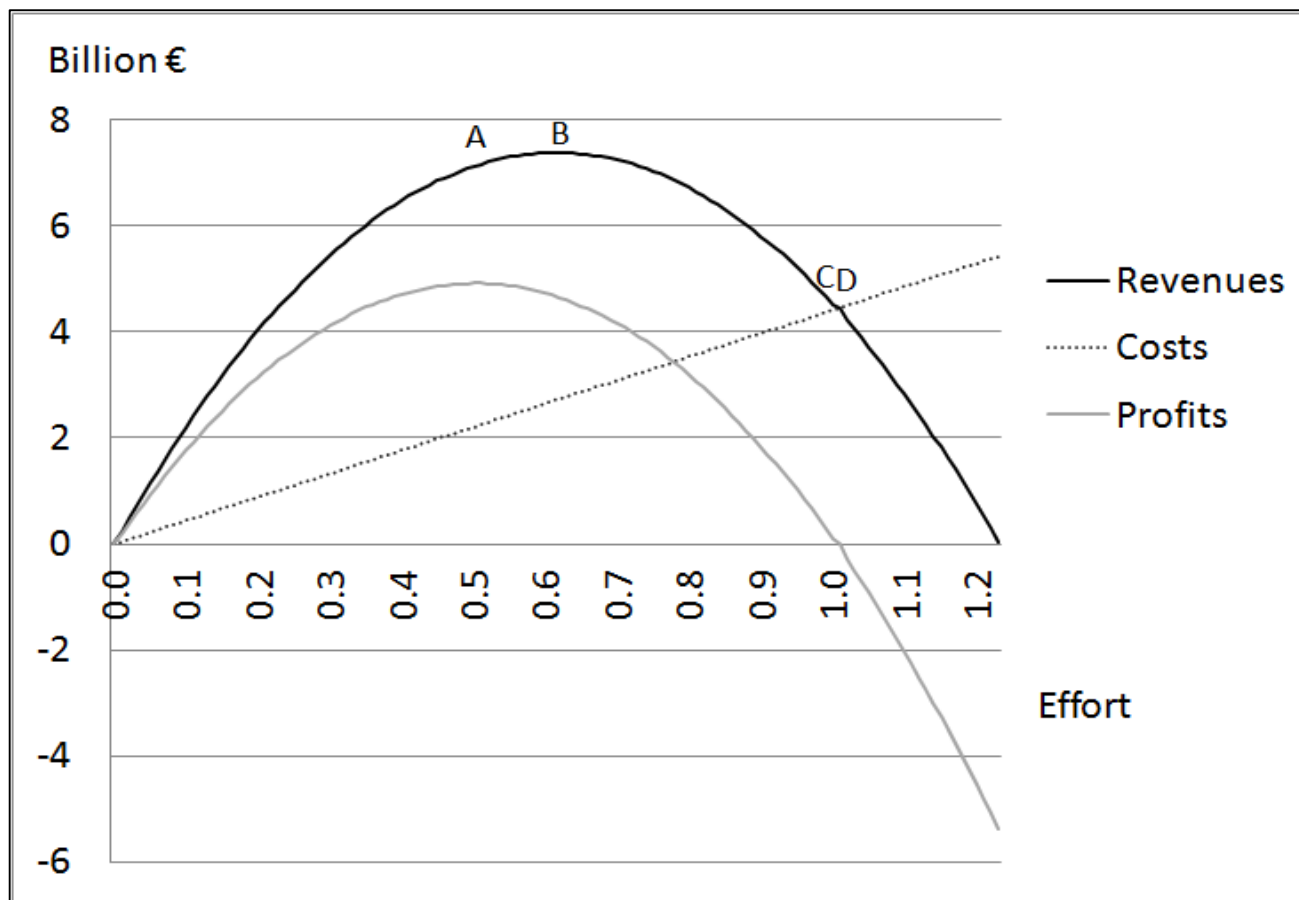
Reference point = externality cost

- ✓ A tax is lower than the **externalities** fuel consumption generates (e.g. related to pollution, health risks and global warming) behaves as a subsidy.
- ✓ A higher taxation level would lead to fuel consumption levels lower than the optimal one. However, governments would capture resource (fisheries) rent.
- ✓ Considering externality cost is done by IMF (Clements et al., 2013) and FAO expert consultation (2000).

Methodology

- ✓ We define a Gordon-Schaefer model relating current (2013) EU fleet activity in Northeast Atlantic (Area 27) with MSY estimates, following Guillen et al. (2016).
- ✓ Cost and economic performance data was obtained from the 2015 AER (STECF).
- ✓ We estimate the economic performance evolution assuming different fuel cost prices.

MSY estimations: EU fisheries in Northeast Atlantic



Guillen, Calvo, Carpenter, Carvalho, Casey, Lleonart, Maynou, Merino & Paulrud. 2016. Sustainability now or later? Estimating the benefits of pathways to Maximum Sustainable Yield for EU Northeast Atlantic Fisheries. *Marine Policy*, 72: 40-47.

Outcomes from the MSY analysis

- ✓ The extent of the study results depend on the assumptions.
- ✓ Important effort (and capacity) reductions are necessary to achieve MSY.
- ✓ Important improvements in profits can be obtained when achieving MSY (~B€ 4.5).
- ✓ About 50% of the improvement comes from the cost reduction (less uncertain).

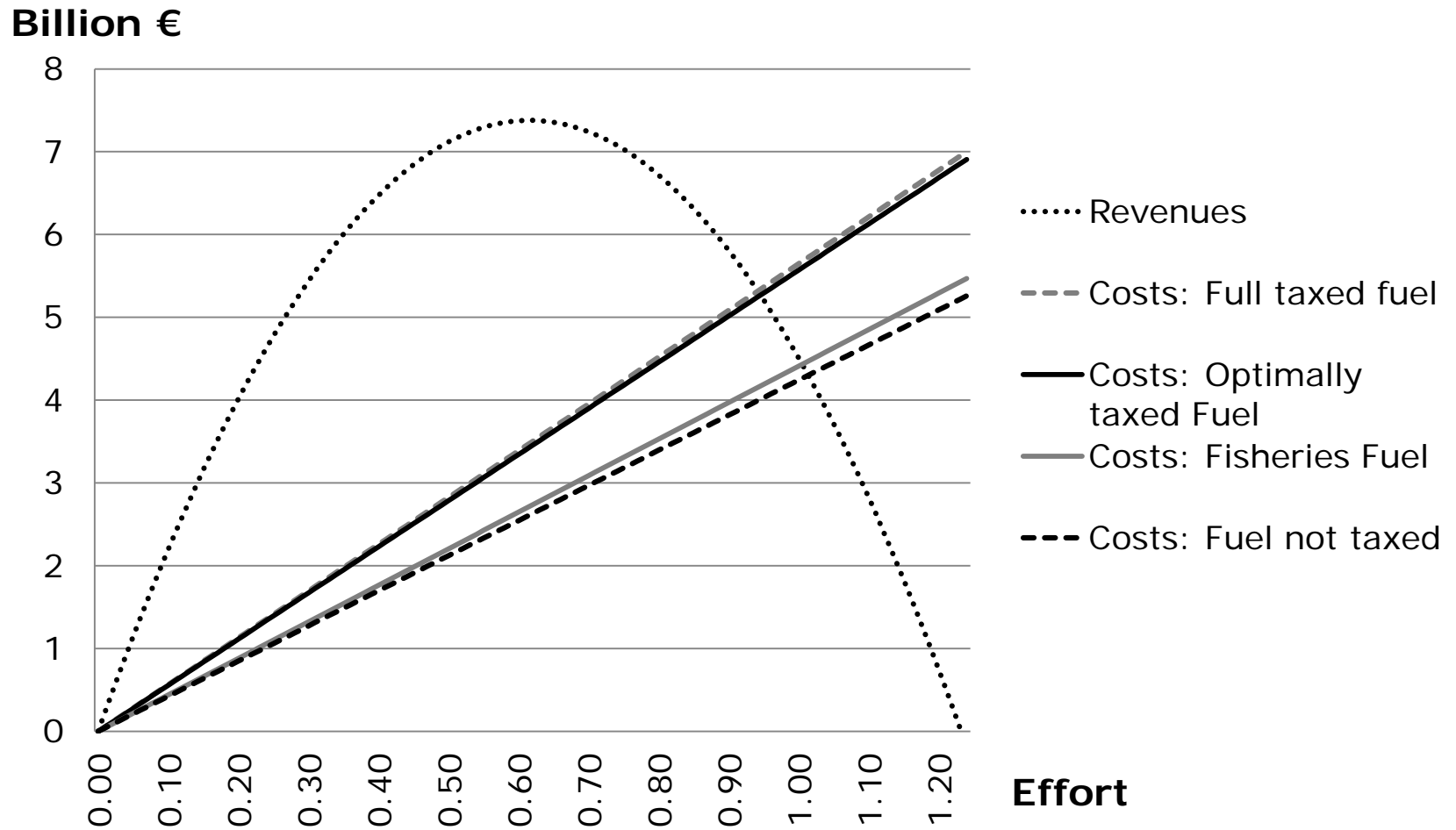
Introducing full fuel costs

- ✓ Considering four different fuel prices:
 - ✓ Fuel prices paid by the fisheries sector (0.63 €/l),
 - ✓ Fully taxed gasoil price (1.44 €/l),
 - ✓ Fuel price with no taxes (0.52 €/l)
 - ✓ Fuel price with taxes accounting for VAT and **externalities** (1.39 €/l).

Externality = Impact of fossil fuel

- ✓ Shindell (2015) estimated the impact of fossil fuel consumption considering a variety of pollutants and impacts on climate change and human health to be \$4.80 per gallon of gasoil.
- ✓ The Clean Air for Europe (CAFE) Programme estimated that emissions occurring at sea impose 50-80% of the damage of the same emissions occurring on land (AEA Technology Environment, 2005).
- ✓ $\$4.80/\text{gallon} * 1\text{gallon}/3.785 \text{ litre} * 1\text{€}/1.3281\$ * 80\% = 0.76 \text{ €/l.}$

Results



Overcapacity due to low fuel prices

- ✓ If there was no fuel tax exemption, fisheries fuel price would be €1.44 per litre instead of €0.63 per litre (= 129% fuel price increase).
- ✓ Net profits (status quo) = -€ 1.14 billion (before €0.10 billion).
- ✓ Effort (needed to obtain the same profits) = - 6% (relative effort from 1.00 to 0.94).
- ✓ Low (subsidized) fuel prices are responsible of the 6% of overcapacity.

Fuel subsidies: a re-estimation

- ✓ In 2013, in the Northeast Atlantic fisheries fuel subsidies = €1.16 billion (€1.23 billion).
- ✓ Total fuel subsidies for the EU fleet (2.4 billion litres of fuel consumed according to AER) = €1.75 (€1.87 billion).
- ✓ Global fuel subsidies could be estimated to be between €28.8 and 38.4 billion (\$38.3-51.1 billion) based on Muir (2015) data.

Conclusions

- ✓ We propose a more comprehensive way to estimate fisheries fuel subsidies.
- ✓ The importance of fuel subsidies increases.
- ✓ We are aware that the externality cost estimation could be controversial.
- ✓ But still, current fuel prices are too low to fully cover the externality costs.
- ✓ It is the best moment to start implementing changes considering overcapacity and that we are in a period of low fuel prices.

Thank you very much!

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