Some TikZ and PGFplot examples

(Tailored toward environmental economics topics)

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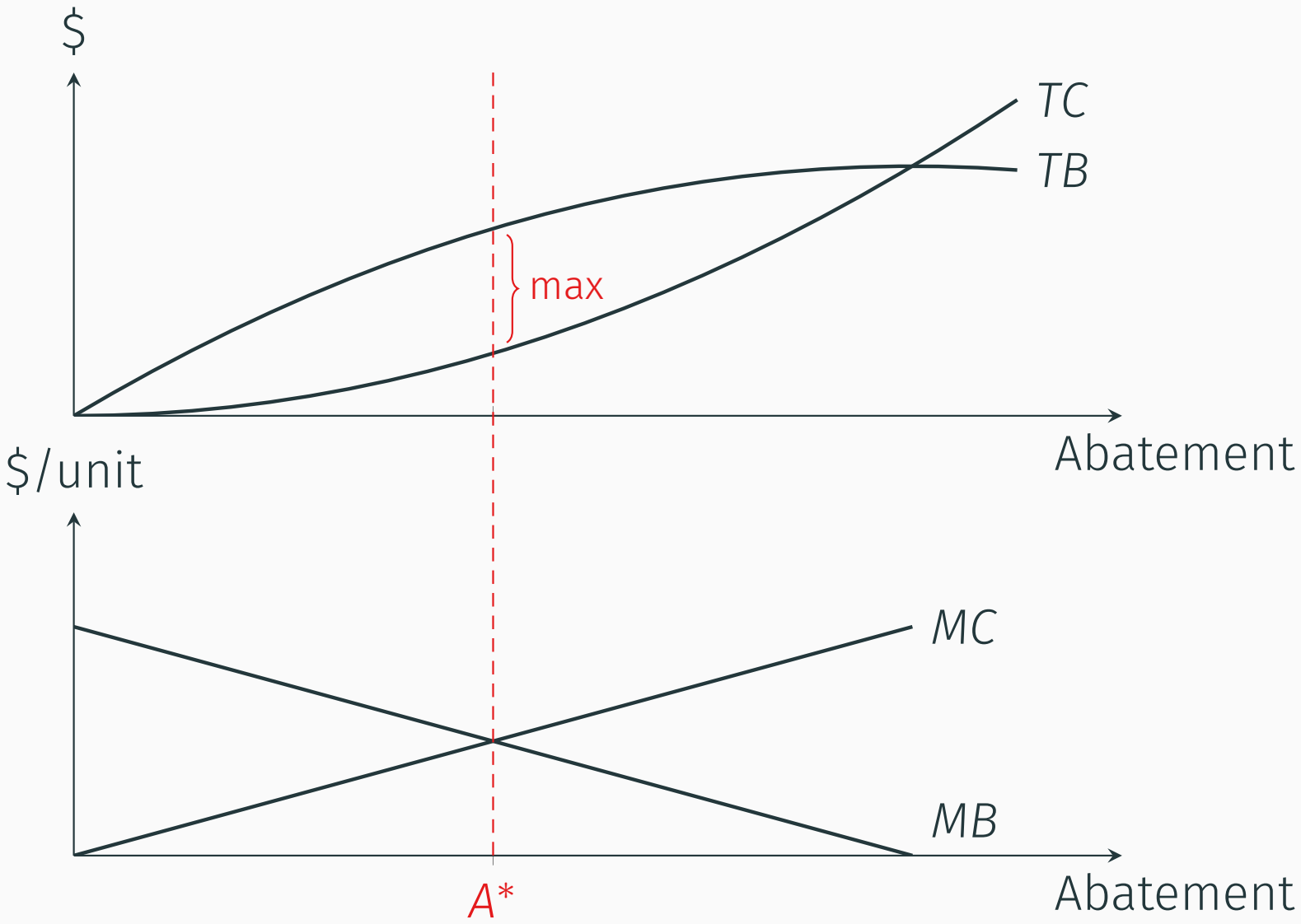
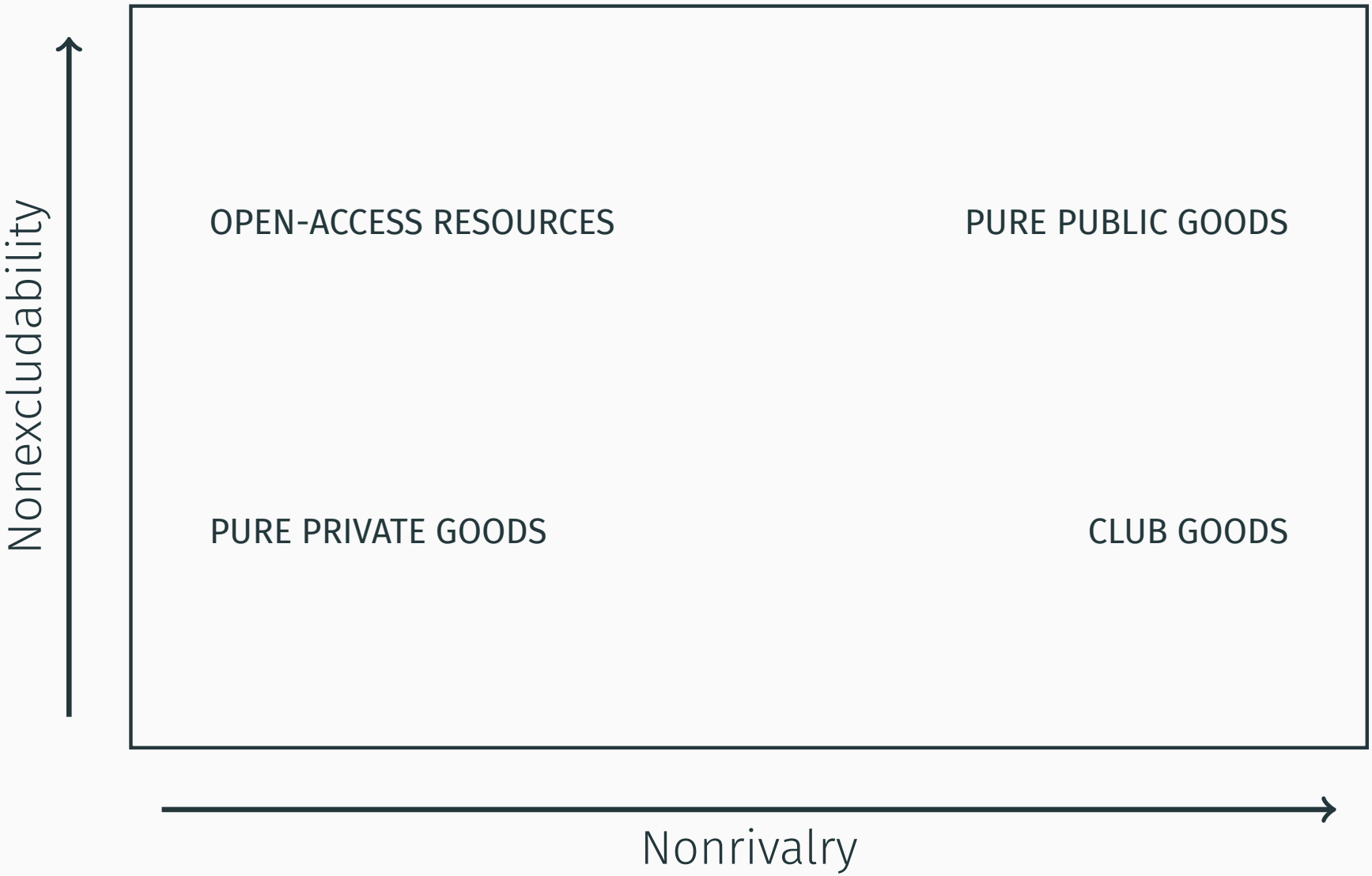
Equimarginal principle

Equimarginal principle



Public goods taxonomy

Public goods taxonomy



Externality with deadweight loss

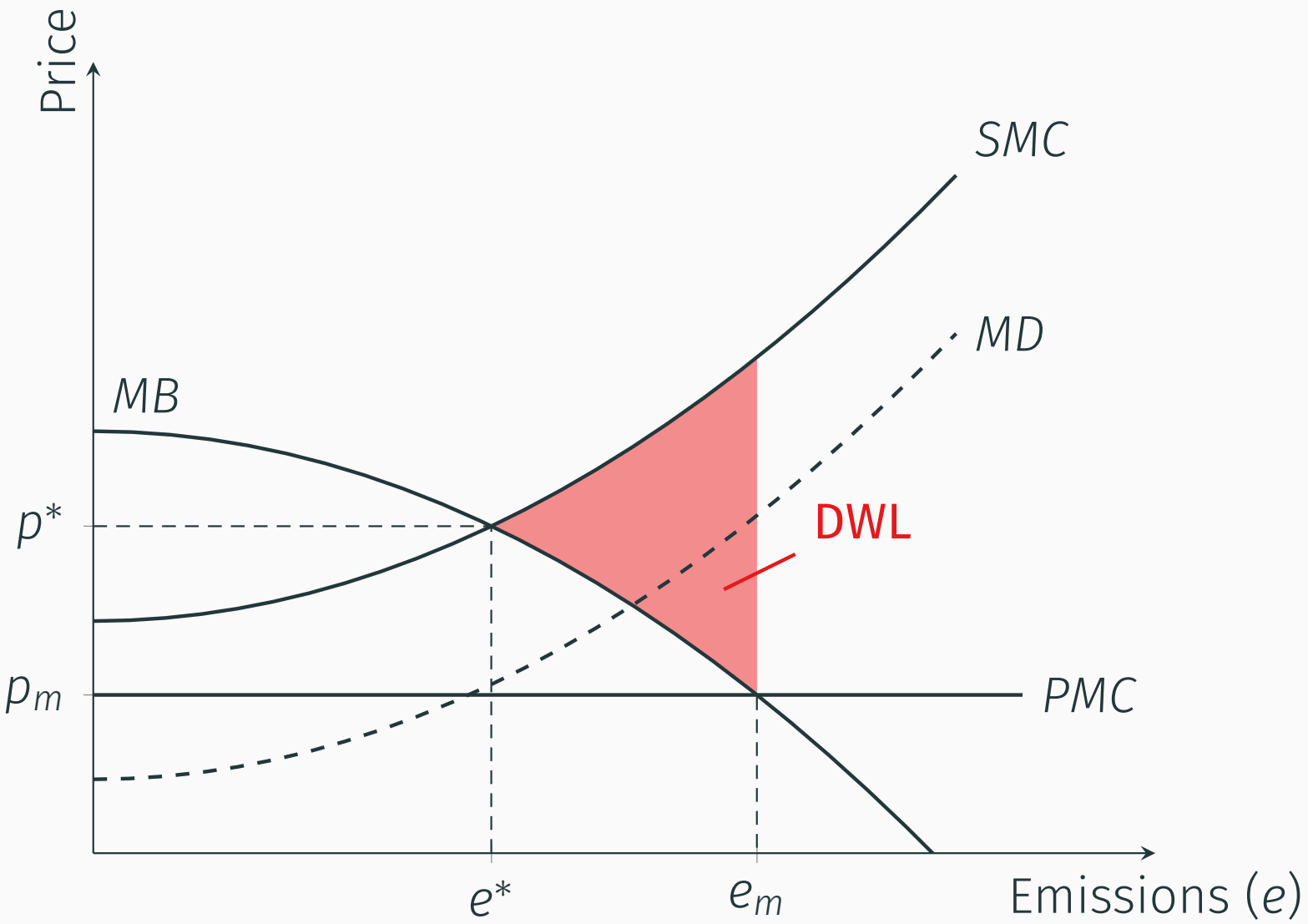
Externality with deadweight loss

For this example:

- Marginal benefits: $MB(e) = 40 - e^2$
- Private marginal cost: $PMC(e) = 15$
- Marginal damages: $MD(e) = e^2 + 7$

We'll compare the unregulated and social outcomes, and highlight the resulting deadweight loss.

Externality with deadweight loss



Tradeable permits

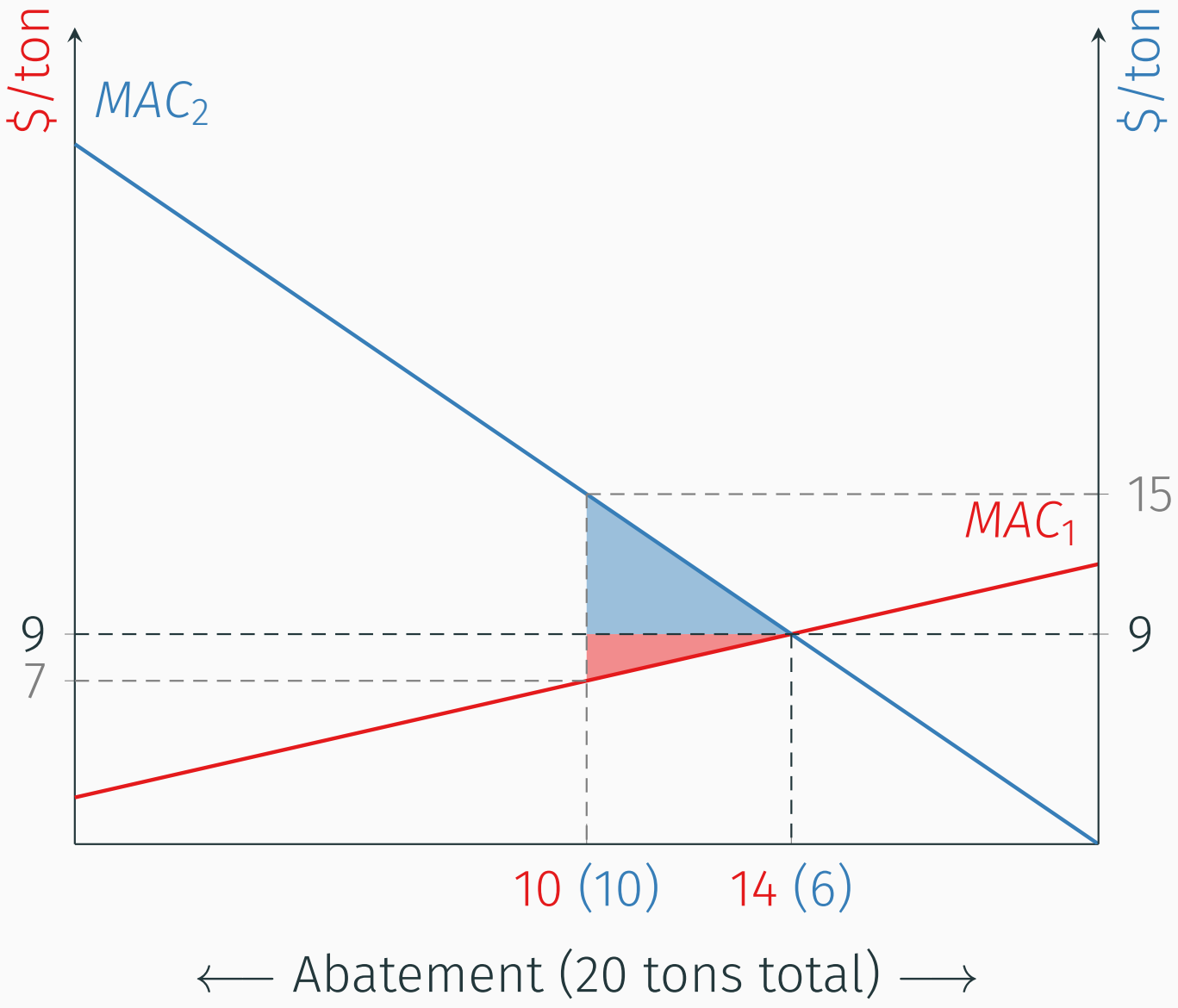
Tradeable permits

For this example:

- $MAC_1 = 2 + \frac{1}{2}A_1$
- $MAC_2 = \frac{3}{2}A_2$
- Total cap = 20 tons

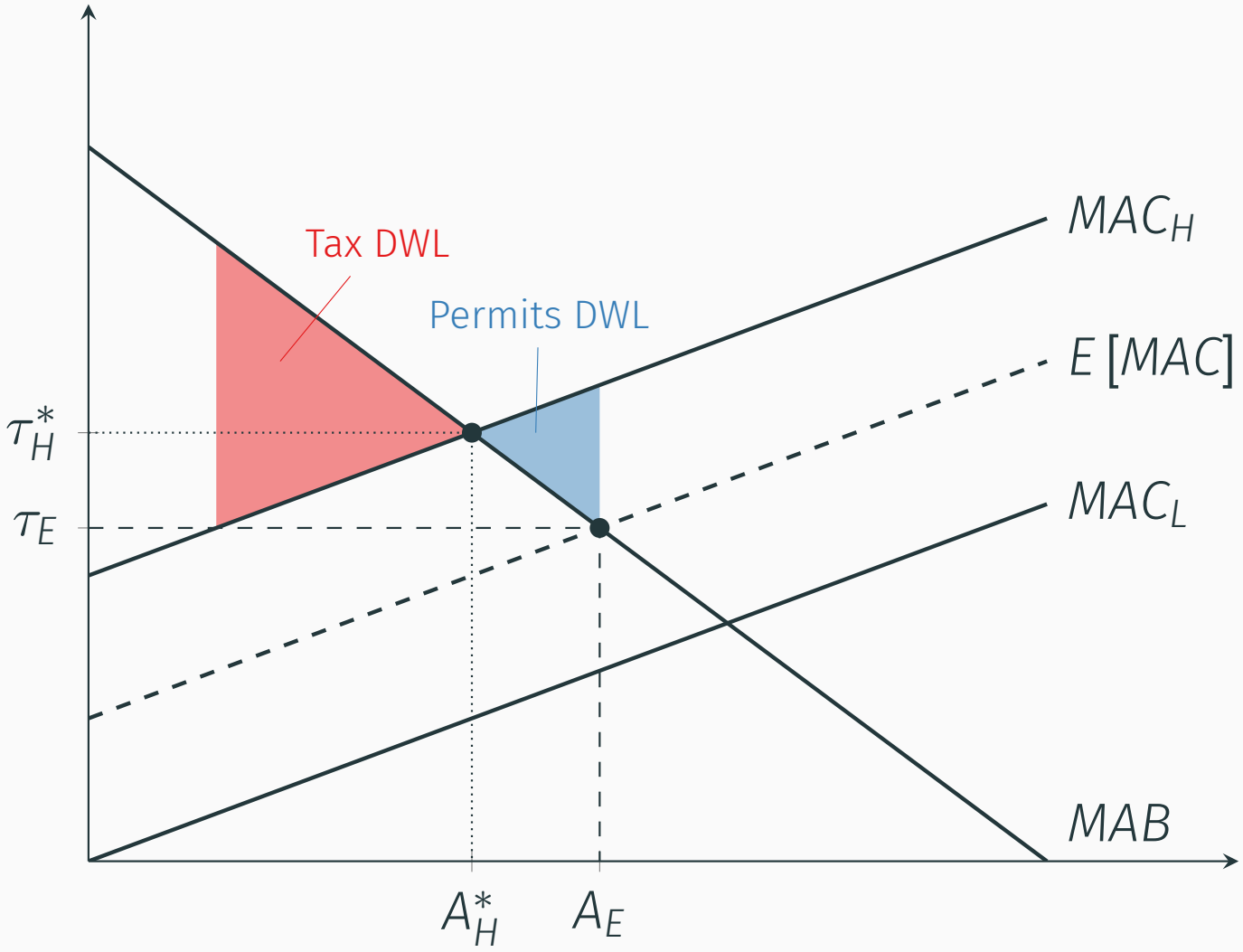
We'll compare outcomes and gains from trade versus a uniform allocation (i.e. where each firm abates 10 tons).

Tradeable permits



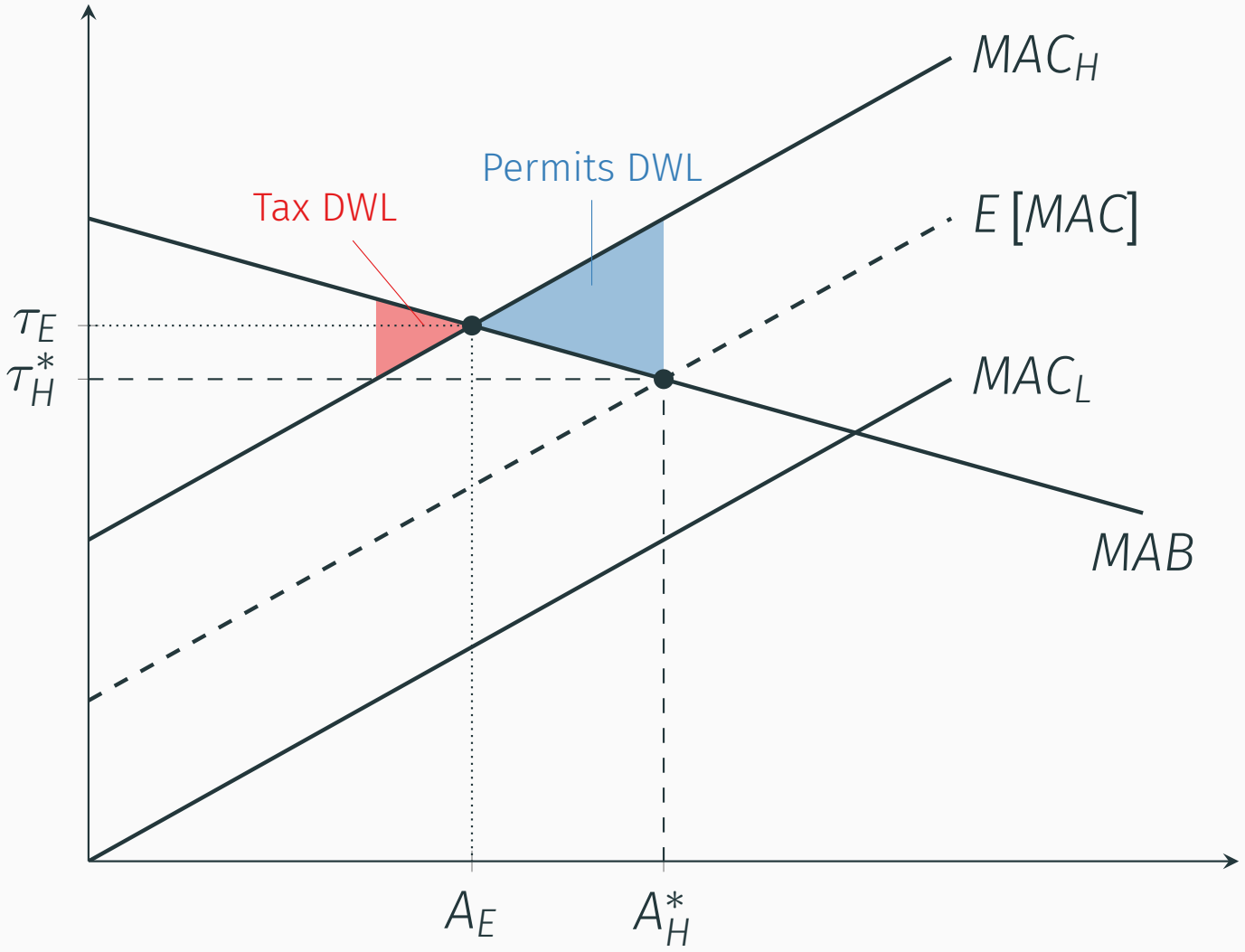
Prices vs Quantities (Weitzman rule)

Prices vs Quantities (1): Permits preferred



MAC flat relative to *MAB*, but uncertain. (Truth is MAC_H.)

Prices vs Quantities (2): Tax preferred



MAC steep relative to *MAB*, but uncertain. (Truth is MAC_H.)

Environmental Kuznets curve

EKC