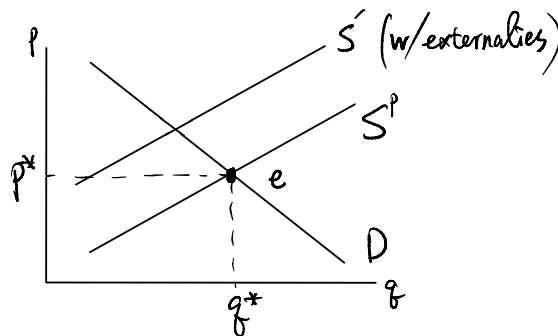# Homework 5

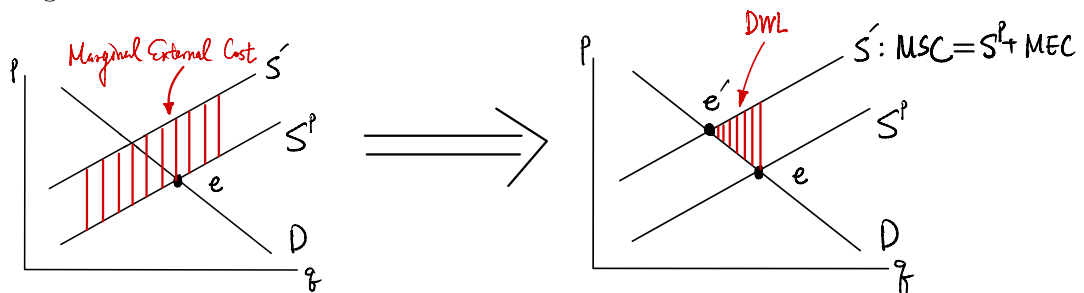### Hsien-Chen Chu T09303304 Econ1

In this sheet the problem sets are answered sequentially.

1. (a) Private Market:

(b) Marginal External Cost & DWL:

(c) **No.** The original private equilibrium e does not maximize the social surplus. The supplier should take the marginal external cost into account, so the supply curve should shift from S^p to S', i.e., reducing production, achieving the new equilibrium e'.

2. **(B)** Refer to Figure 1. Taking into account private and external costs, the maximum total surplus that can be achieved in this market is **$1080.**
   Expl.: Considering private and external cost, the equilibrium happens at $(p^*, q^*) = (18, 120)$. Thus, the total surplus $= \frac{1}{2} \times (24 - 6) \times 120 = 1080$.

3. **(C)** A **tax** would move the market in Panel (b) closer to the socially optimal outcome, but a **subsidy** would move the market in Panel (c) closer to the socially optimal outcome.
   Expl.: In Panel (b) there exists the external costs , and taxes can be issued to internalize the negative externality. In Panel (c) there exists the external benefits, and subsidies can be implemented to help incorporating the positive externality, elevating toward the optimal level.