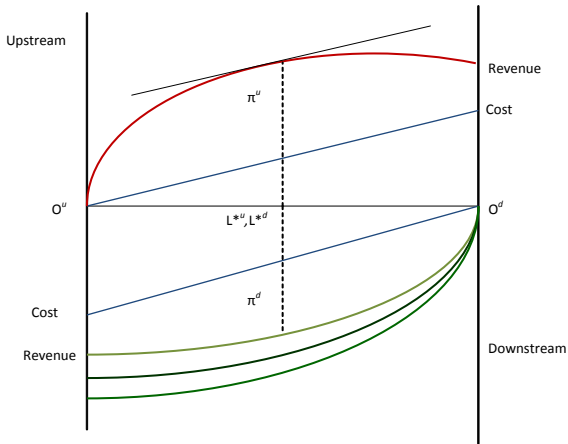


Simple Externalities Examples

River Pollution

- *Assume:*
 - 1 Two firms are located along the same river
 - 2 The *upstream* firm u pollutes the river
 - 3 The production of the *downstream* firm, d , is affected
 - 4 $P = 1$
 - 5 Both firms produce the same output
 - 6 Labor and Water are used as inputs
 - 7 Water is free, labor receives w
 - 8 $F^u(L^u)$ and $F^d(L^d, L^u)$ with $\frac{\partial F^d}{\partial L^u} < 0$
 - 9 Each Firm acts independently and seeks to maximize its own profit: $\pi^i = F^i(\cdot) - wL^i$

- Equilibrium with river pollution



The Rat Race Problem

- It is a contest for relative position. It helps explain:
- Why students work too hard when final marking takes the form of a ranking.
- The intense competition for a promotion in the workplace when candidates compete with each other and only the best is promoted
- Assume that performance is judge not in *absolute* terms but in *relative* terms

		Player 2	
		Low effort	High effort
Player 1	Low effort	$(1/2, 1/2)$	$(0, 1-c)$
	High effort	$(1-c, 0)$	$(1/2-c, 1/2-c)$

- Note that $0 < c < 1/2$