Supply and Demand

The Engine of a Market Economy

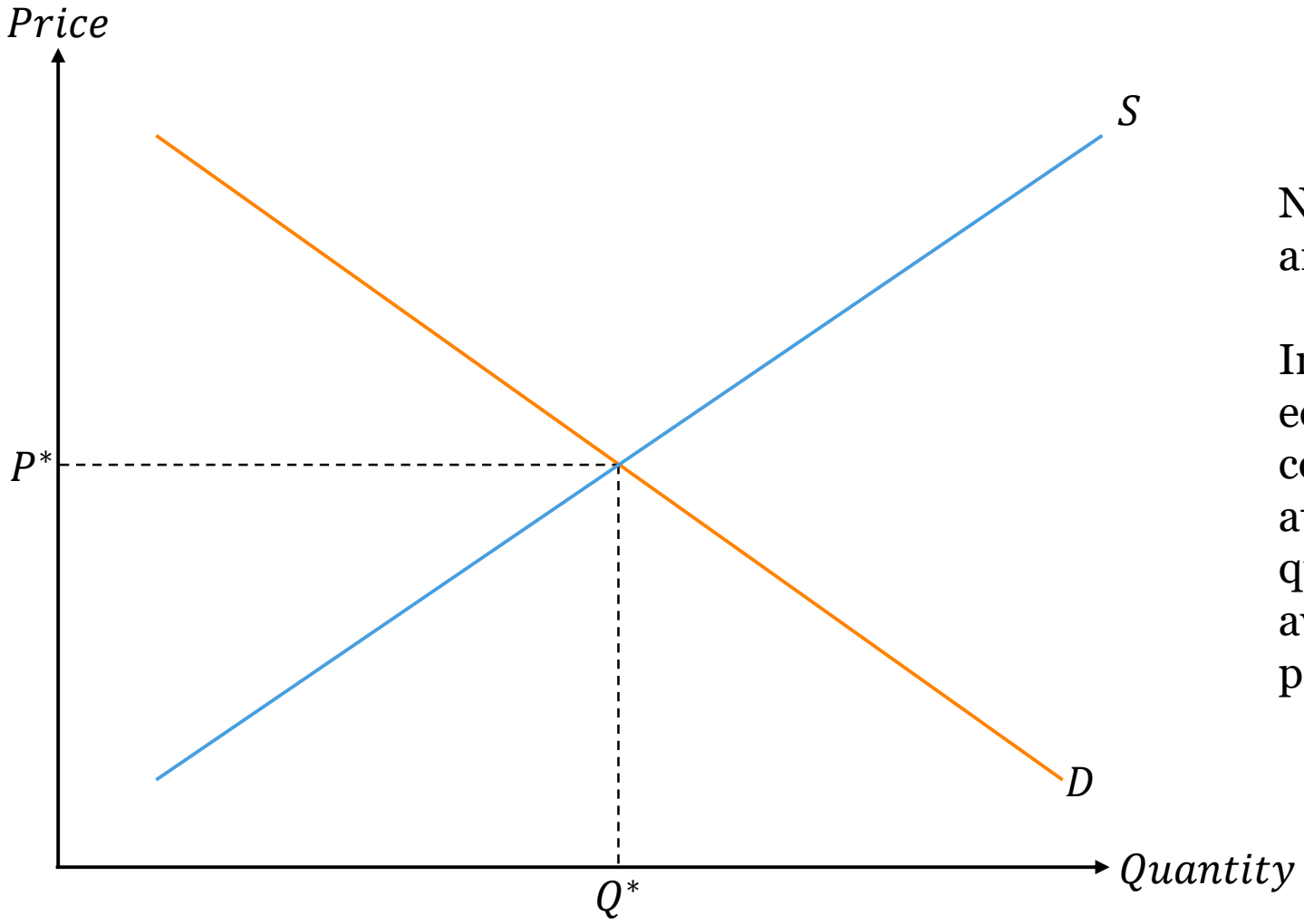
Market Equilibrium

Demand and Supply reflect the **plans** of consumers and firms.

When those plans are **coordinated**, market equilibrium results.

Equilibrium does not mean “nothing happens” or “nothing changes.” Rather, it means no one has a reason to change the current plan.

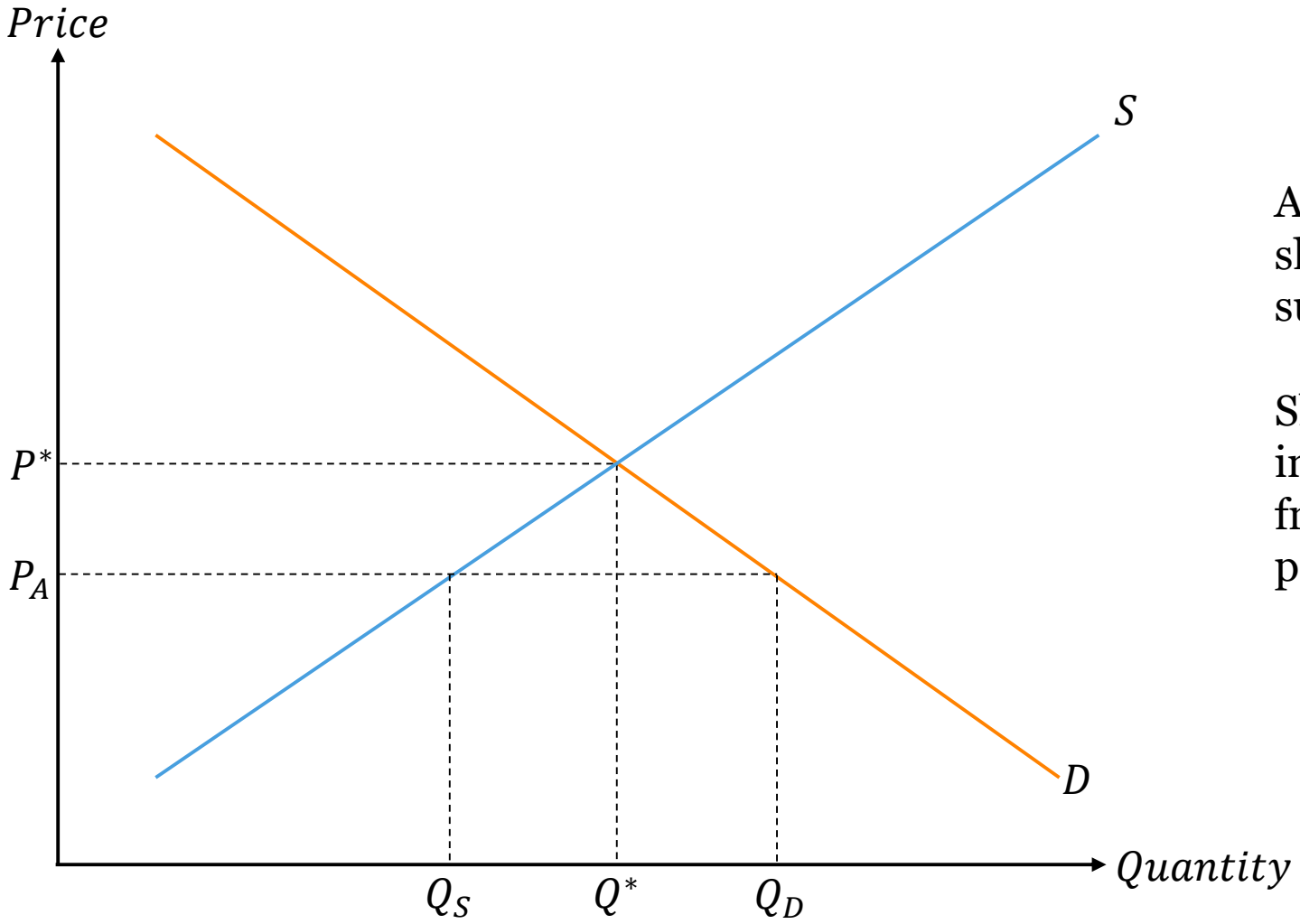
Market Equilibrium in a Graph



No other P will equate Q_D and Q_S.

In other words, no other P equates the quantities consumers plan to purchase at a given price with the quantities seller plan to make available for sale at a given price.

Disequilibrium on a market



At P_A, $Q_D > Q_S$, so there is a shortage. At $P_i > P^*$, a surplus would obtain.

Shortages and surpluses invite equilibrating behavior from consumer and producers.

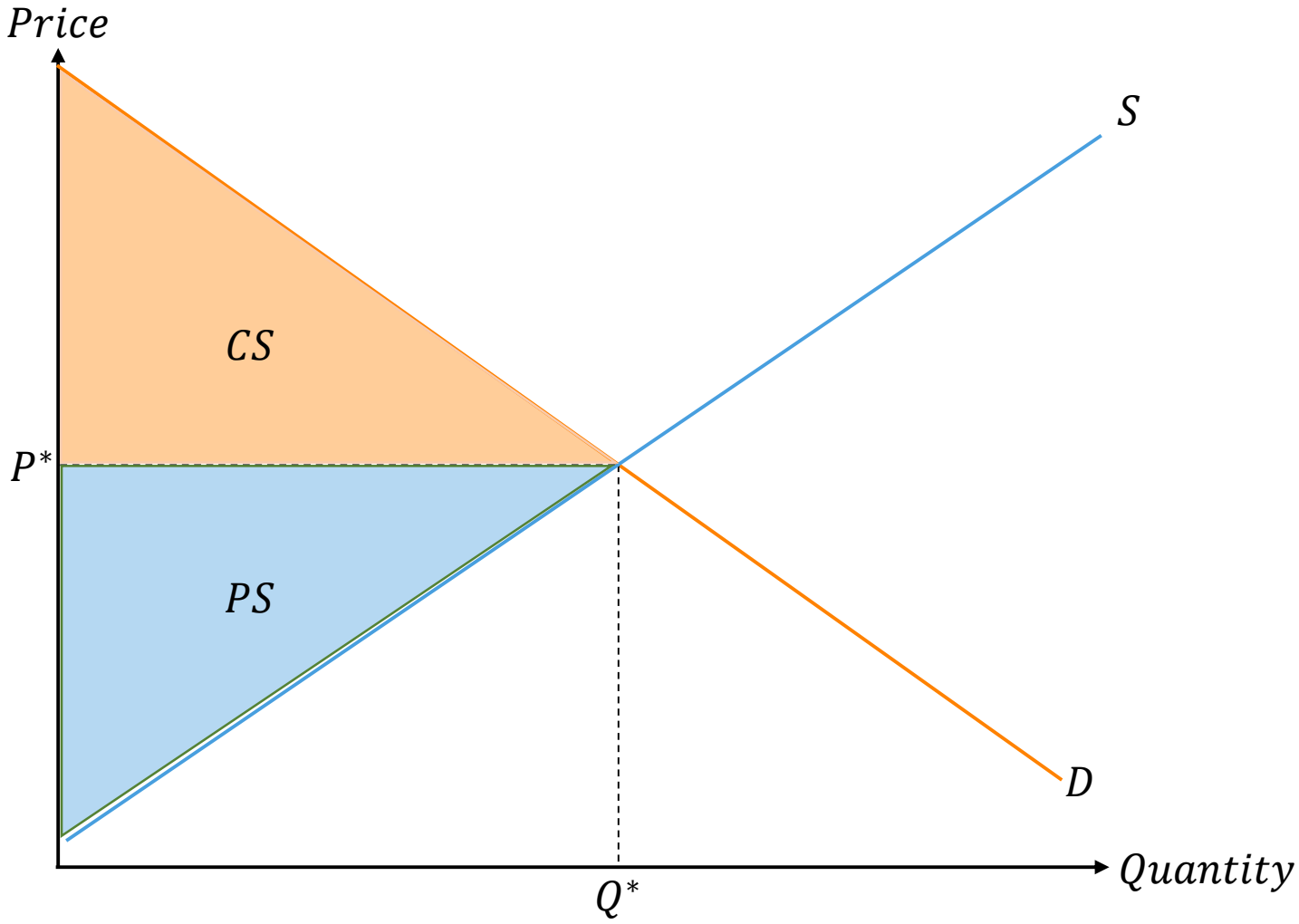
Markets and Efficiency

Pareto Efficient — cannot improve anyone's situation without making another person worse off

Marshallian efficiency — maximizing total surplus according to willingness to pay (to be paid or to sell) criterion

- **Consumer surplus** — Total willingness to pay net of price
- **Producer surplus** — Price net of opportunity cost

Surplus in a Graph



Calculating CS/PS

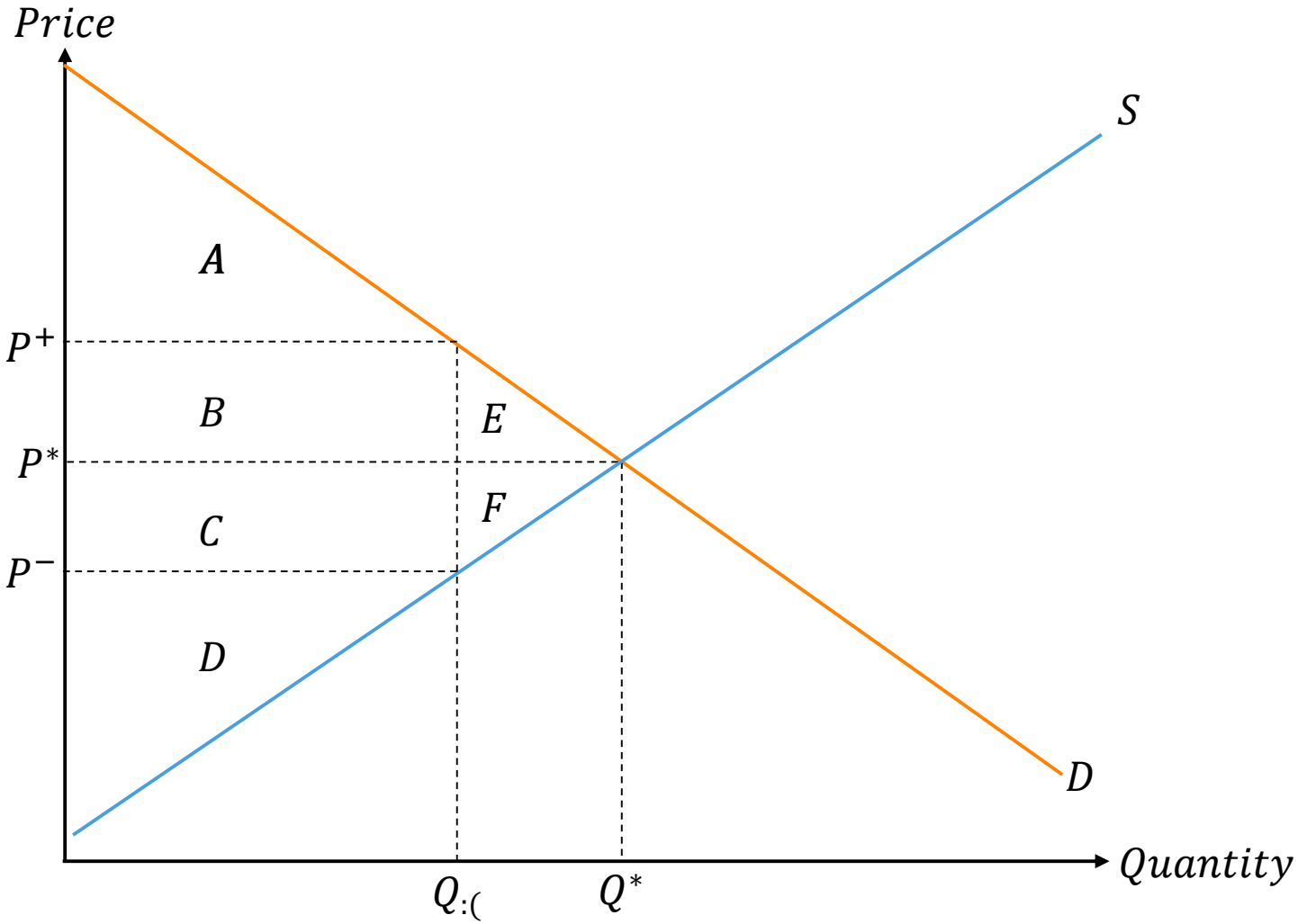
1. Geometry: area of a triangle
2. Calculus: area under a curve

Trouble in Paradise: Deadweight Loss

When markets clear at the **equilibrium price** and **quantity**, **joint surplus** (consumer + producer) is **maximized**.

Whenever any other situation obtains, there will be loss to one or both of those groups. A loss in surplus of one group—that is not simultaneously a gain to some other—is **waste** or **inefficiency**.

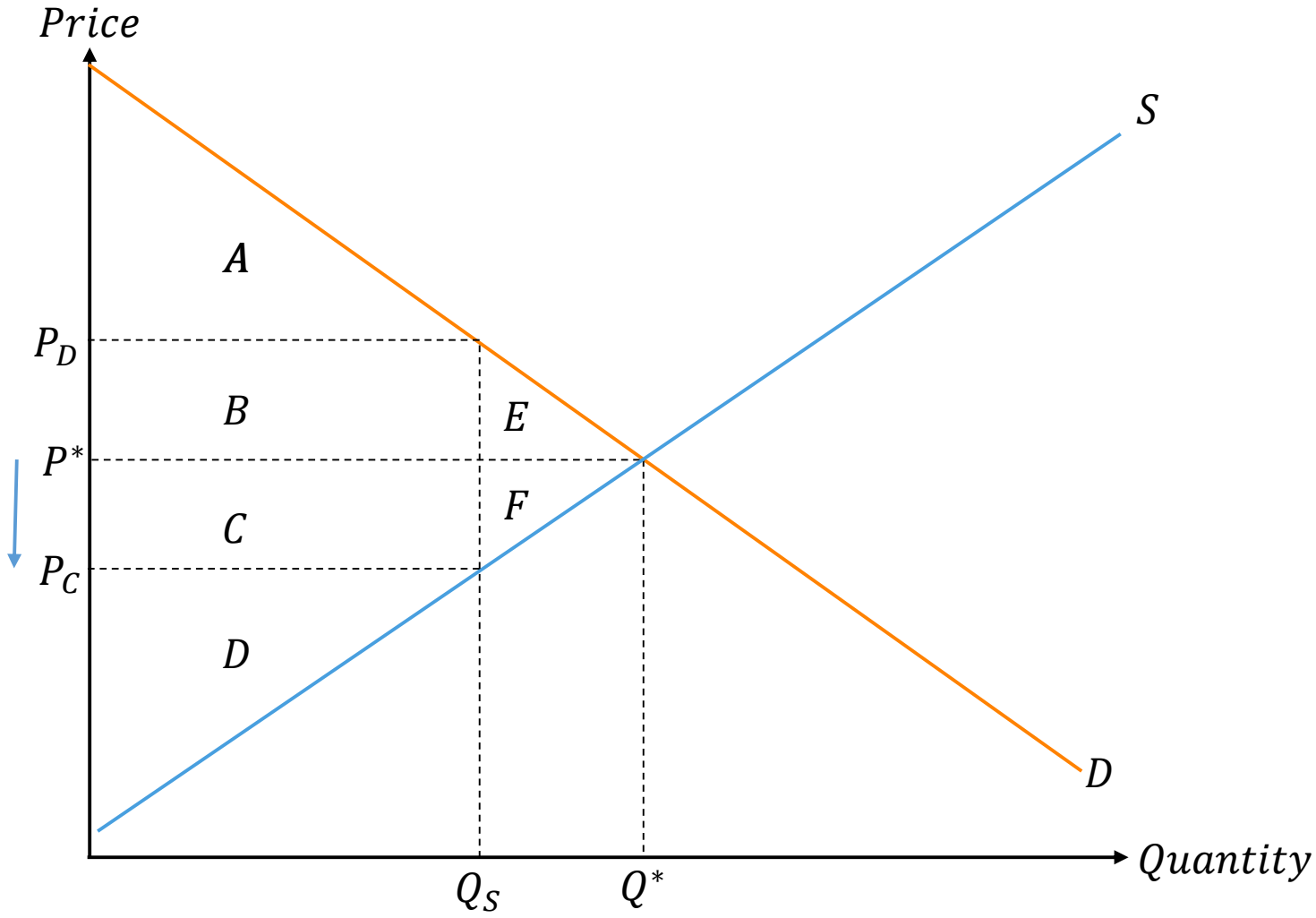
Deadweight Loss, Graphically



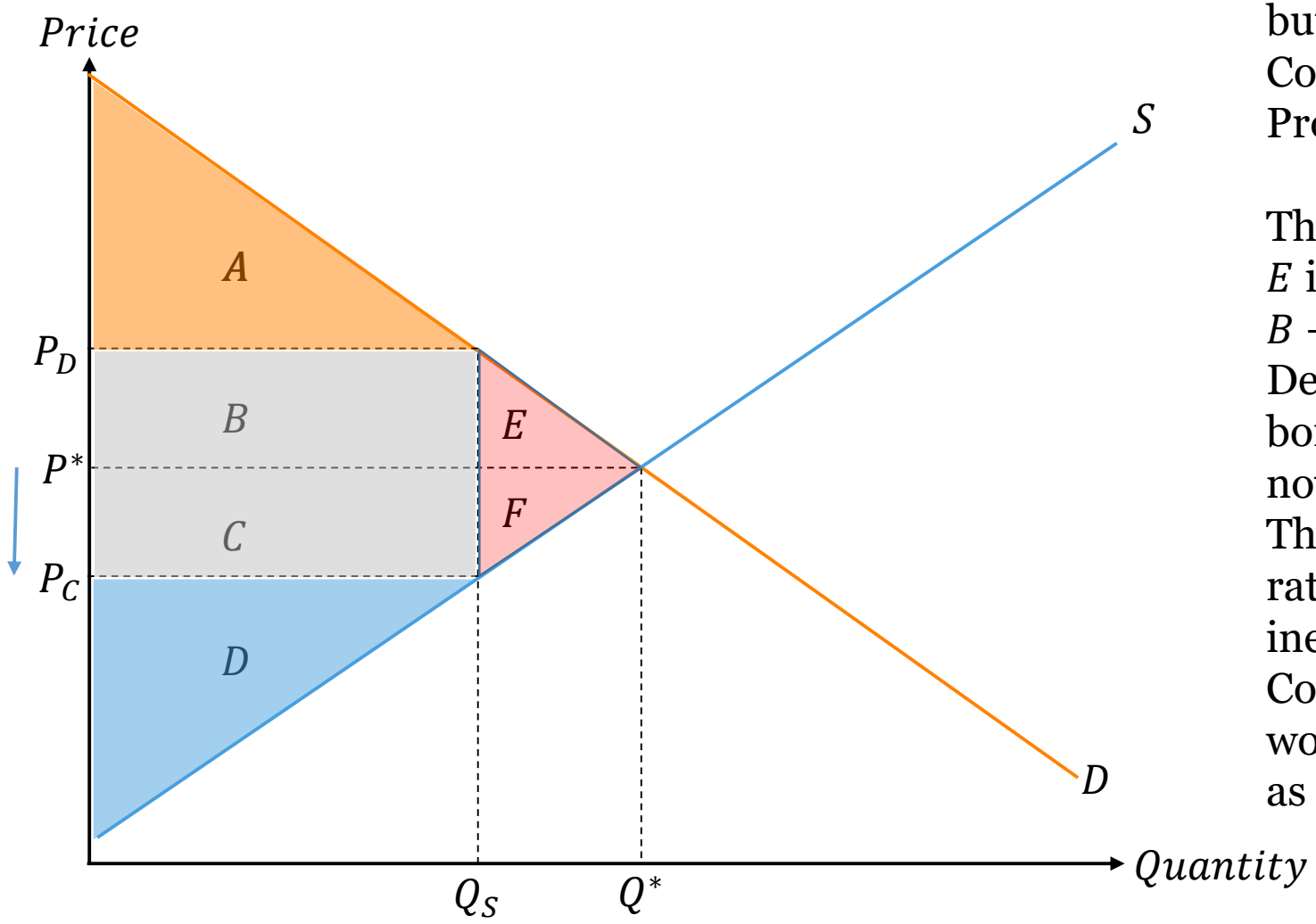
When price is above (P^+) or below (P^-) equilibrium (P^*), there will be a deadweight loss.

In the graph, the areas E and F are deadweight loss from consumers (E) and producers (F), respectively.

A Price Ceiling, Graphically



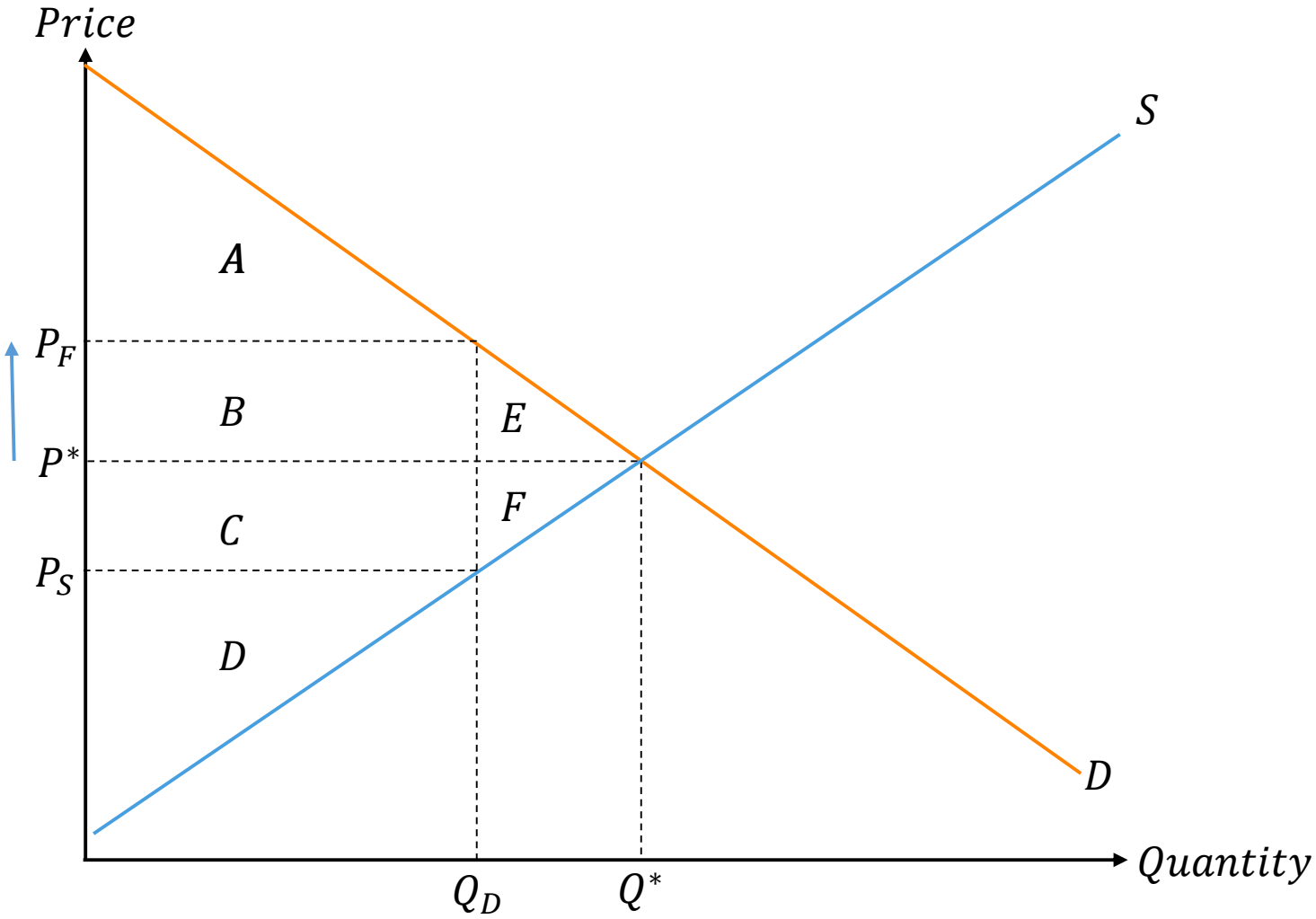
A Price Ceiling, Graphically



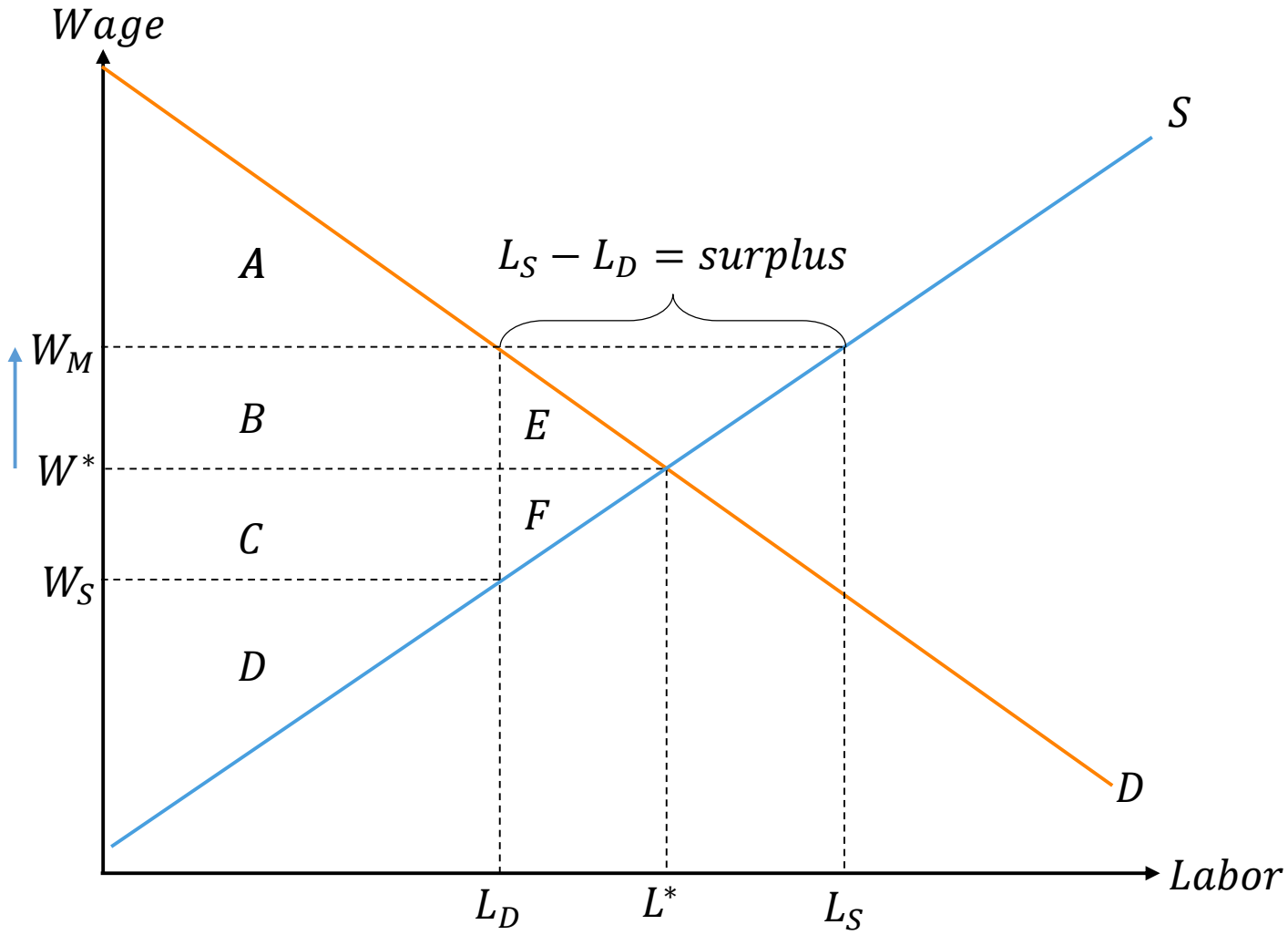
What it promises:
B and C will be CS. E is lost CS, but C is gained.
Consumers are better off!
Producers are worse off by $C + F$.

The Reality:
E is lost CS, and some of $B + C$ will also be lost as Deadweight costs (costs borne by consumers that are not also benefits to producers). This is because of non-price rationing and other forms of inefficient allocation.
Consumers and Producers are worse off by $E + F$ and as much as $B + C$.

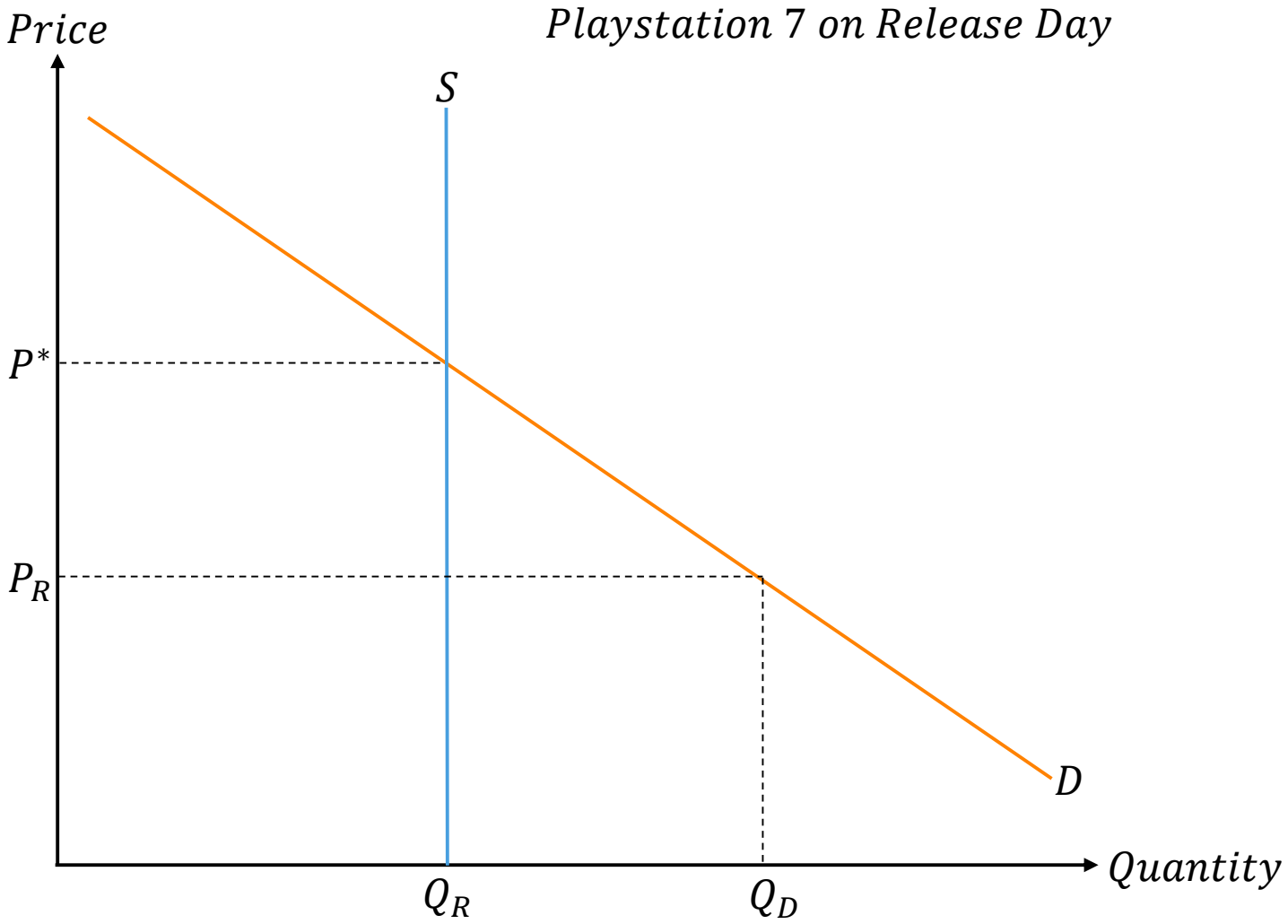
A Price Floor, Graphically



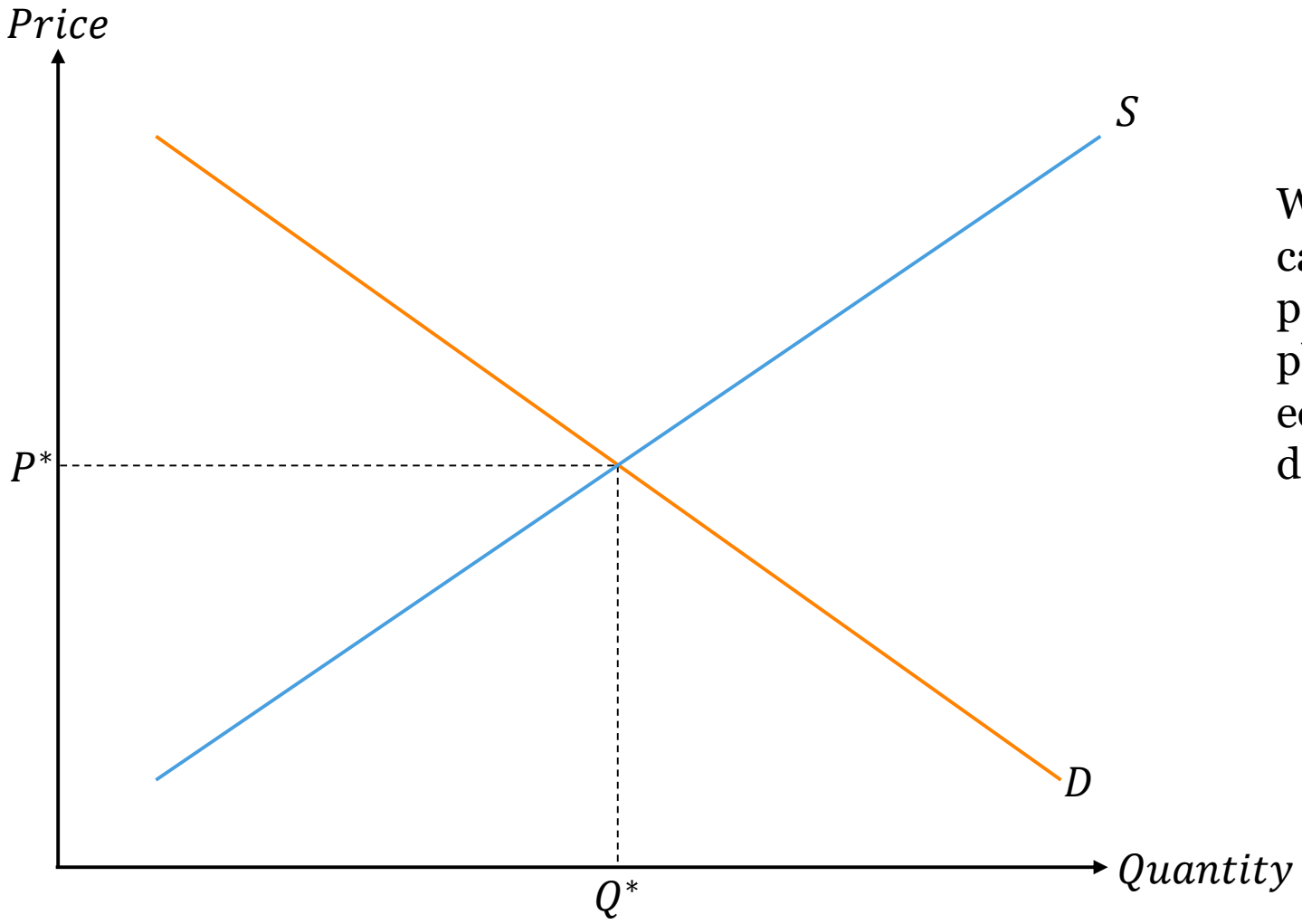
Minimum Wage, A Price Floor



An Interesting Example

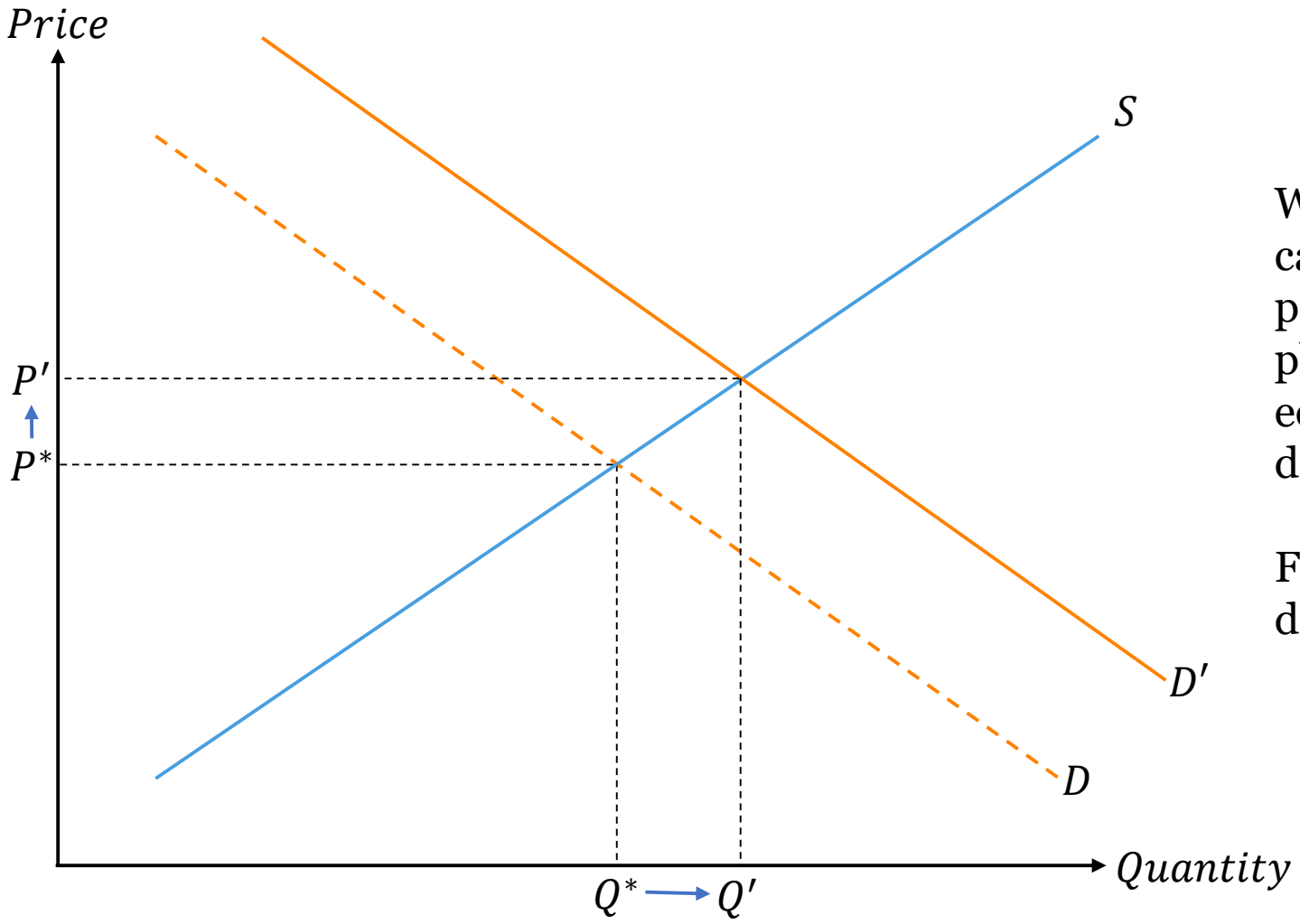


Comparative Statics



When an external factor causes consumers or producers to change their plans, a new market equilibrium will emerge as demand and/or supply shift.

Comparative Statics



When an external factor causes consumers or producers to change their plans, a new market equilibrium will emerge as demand and/or supply shift.

For example, suppose demand increases…

Comparative Statics

Break the question up! Solve simpler problems! Never forget *ceteris paribus*.

Changes in demand affect P and Q in the same direction, because shifts in demand move along an upward-sloping supply curve.

Changes in supply affect P and Q in opposite directions, because shifts in supply move along a downward-sloping demand curve.

Prices and Knowledge

Prices emerge in the **process of equilibration**.

Prices give consumers and producers an **incentive** to adjust their behavior (even if not their plans directly)

These incentives also convey valuable (priceless?) information about relative scarcity, which helps consumers and producers coordinate their plans.