Industry Supply

- Industry Equilibrium in the Short Run
- Industry Equilibrium in the Long Run
- Example: Taxation in the Short and Long runs
- Economic Rents
- Example: Taxi Licenses.
Industry Equilibrium in the Short-Run

- **Short-run:** number of firms in an industry is **fixed**.
- **No entry or exit occur.**
Industry Equilibrium in the Short-Run

To get industry (market) supply sum up the individual firm’s supply curves:

\[ S(p) = \sum_{i=1}^{n} S_i(p) \]

where \( n \) is the number of firms in the market.
Industry Equilibrium in the Short-Run
Industry Equilibrium in the Short-Run
Industry Equilibrium in the Short-Run

\[
p^* \\
y^{*}_A \quad \text{Firm A} \\

y^{*}_B \quad \text{Firm B} \\

y^{*}_C \quad \text{Firm C}
\]
Long-Run Industry Equilibrium

From the short to the long-run, there are two types of effect:

- **Firms can freely adjust all inputs:** characterize a firm’s supply using its long-run marginal cost curve.
- **Exit** of firms that would make negative profits in the long-run. **Entry** of new firms if incumbents are making positive profits.
The Long-Run Supply Curve
Long-Run Equilibrium

- Equilibrium price equals minimum long-run average cost each firm in the market is making zero profits.

- At zero profits the industry stops growing because there is no incentive to enter: mature industry.
Zero Economic Profits

- All factors of production are being paid their opportunity cost or market price: what they could earn elsewhere.

- Owner of the firm gets payment for labor and capital inputs that he/she supplies.
Zero Economic Profits

Example: owner buys capital stock.

In the long-run firm makes zero economic profits once the user cost of capital is taken into account.

User cost includes: 1) economic depreciation; 2) forgone interest.

Part 2) represents capital’s remuneration.
Taxation in the Short-Run

\[ D \]

\[ p \]

\[ p_D \ast \]

\[ p * \]

\[ p_s \]

\[ S_s + t \]

\[ S_s \]

\[ y \]

\[ y^* \]
Taxation in the Long-Run

\[ \begin{align*}
\mathcal{D} & = p^* \\
\mathcal{S}_L & = p^{**} \\
\mathcal{S}_L + t & = y^* \\
y^* & = y^{**} \\
y & = y
\end{align*} \]
Economic Rents

In some industries the number of firms is fixed even in the long-run because some factors of production are available in fixed supply:

1. Land, natural resources;
2. Licenses for cabs, liquor;
Economic Rents

Factors of production available in fixed supply earn an **economic rent**: 

Payment to a factor of production *in excess* of minimum payment necessary to have that factor supplied.
Economic Rent: Taxi Licenses in NYC

- License is barrier to entry.
- Yearly **accounting profit** from license: $17K.
- $17K represents an **economic rent**.
- Cost of supplying licenses: zero!
Economic Rent: Taxi Licenses in NYC

How much would you pay to buy a license to operate a taxicab in NYC?
Economic Rent: Taxi Licenses in NYC

- If interest rate is 10%:
  
  \[ 0.10P = $17K \]

- Thus:
  
  \[ P = \frac{$17K}{0.10} = $170K \]
Economic Rent: Taxi Licenses in NYC

- In reality cab licenses in NYC sell for $100K.
- Why less than $170K?
  1. Risk factors;
  2. Hidden costs.
Q: How much economic profit do owners of cabs make in NYC?
Economic Rent: Taxi Licenses in NYC

A: Zero. Why? Because the opportunity cost of not selling the cab license represents a cost of production for the owner.
Economic Rent: Taxi Licenses in NYC

- If you own a cab license in NYC, your revenue minus variable costs are $17K a year.
- The opportunity cost of owning a license is:

$$ r \times P $$
Economic Rent: Taxi Licenses in NYC

As long as

$17K > r \times P$

the demand for the license would increase driving $P$ up, until:

$17K = r \times P$
Economic Rent: Taxi Licenses in NYC

Thus economic profits are zero:

$$\Pi = $17K - r \times P = 0$$