Questions We Can Answer

1) Why is perfect competition good for society?
2) Why do industries rise and fall?

Adam Smith

- "Invisible Hand"
  - People are motivated by self-interest.
  - Yet, collectively, such a goal can serve society’s best interest.
  - Hence, perfectly competitive markets can enable society to maximize its well being.
  - Discuss later: Not necessarily always.

Economic Profit

- Firms seek economic profit.

Economic Profit =

- Total Revenue - Economic Costs
- Total Revenue - (Explicit + Implicit Cost)
- Is this news to us? No, we know this!!!

Economic Profit

- Implicit Costs = Opportunity Costs

- Firm: Opportunity Cost = Normal Profit
- So, can say: When Economic Profit > 0

- in common lingo, “Earning above normal profit”.

Economic Profit

- Accounting Profit = TR - Explicit Costs
  - What most people quote.
  - Economic Profit is relevant for economic decisions

Pudge Buffett’s Decision

To Farm or Not To Farm?

- Corn farmer with payments for land and equipment rental = $10,000/yr
- Supplies his labor.
- Only other option is retail store manager at $11,000/yr.
- TR from corn sales = $22,000
Revenue, Costs, Profit: Decision 1
Uses Own Labor Resource

<table>
<thead>
<tr>
<th>Total</th>
<th>Explicit</th>
<th>Implicit</th>
<th>Accounting</th>
<th>Economic</th>
<th>Normal</th>
</tr>
</thead>
<tbody>
<tr>
<td>revenue</td>
<td>costs</td>
<td>costs</td>
<td>profit</td>
<td>profit</td>
<td>profit</td>
</tr>
<tr>
<td>22,000</td>
<td>10,000</td>
<td>11,000</td>
<td>12,000</td>
<td>1,000</td>
<td>11,000</td>
</tr>
</tbody>
</table>

Observe: What’s important here?

Economic Cost = Explicit + Implicit
= Explicit + Opp Cost
= 10000 + 11000
= 21000
Economic Profit = 1000 So, Farm.

Revenue, Costs, Profit: Decision 2
Uses Own Land Resource

Suppose Pudge inherited land, but could rent it for $6000? Farm or not?

<table>
<thead>
<tr>
<th>Total</th>
<th>Explicit</th>
<th>Implicit</th>
<th>Accounting</th>
<th>Economic</th>
<th>Normal</th>
</tr>
</thead>
<tbody>
<tr>
<td>revenue</td>
<td>costs</td>
<td>costs</td>
<td>profit</td>
<td>profit</td>
<td>profit</td>
</tr>
<tr>
<td>22,000</td>
<td>4000</td>
<td>11,000</td>
<td>18,000</td>
<td>1,000</td>
<td>11,000</td>
</tr>
<tr>
<td>+6,000</td>
<td>+6,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Accounting Profit increases. But Economic costs and profit same. Decision same. Farm.

Revenue, Costs, Profit: Decision 3
Uses Own Capital Resource

Suppose Pudge could buy the equipment with resale value of $100,000? That money could have earned 10% in a savings account at the Bank.

<table>
<thead>
<tr>
<th>Total</th>
<th>Explicit</th>
<th>Implicit</th>
<th>Accounting</th>
<th>Economic</th>
<th>Normal</th>
</tr>
</thead>
<tbody>
<tr>
<td>revenue</td>
<td>costs</td>
<td>costs</td>
<td>profit</td>
<td>profit</td>
<td>profit</td>
</tr>
<tr>
<td>22,000</td>
<td>6000</td>
<td>11,000</td>
<td>16,000</td>
<td>-5,000</td>
<td>11,000</td>
</tr>
<tr>
<td>+10,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10,000</td>
</tr>
</tbody>
</table>

$100,000 goes into asset with resale value $100,000. Economic Profit = -5000. Don’t Farm.

Short Run: Positive Economic Profit

Market price of $2/bushel produces economic profits

The Effect of Entry: Price Falls

Equilibrium when Entry Ceases
1.05
Economic loss = $21,000/year

Prices below minimum ATC results in economic losses.

Short-Run: Negative Economic Profit (Loss)

Equilibrium when Exit Ceases

The departure of firms from the industry increases the market price

Summary

Entry/Exit

SR Positive Profits: Attract Entry
Market Supply Curve Shifts Out
Price Falls
P = MC = Min ATC, Zero Economic Profits

SR Loss: Induces Exit
Market Supply Curve Shifts In
Price Rises
P = MC = Min ATC, Zero Economic Profits

LR Equilibrium

LR Equilibrium

P = min ATC
So, profit max point, P = MC point is where
P = min ATC, where Economic Profit = 0

No tendency for entry or exit unless something changes.

Don’t worry about text discussion of LR constant MC, etc.

Entry/Exit

What Happens if market initially in LR Equilibrium and:

One corn farm adopts cost-saving innovations?

News reports circulate that corn producers use fertilizers that are bad for human health?

Rise & Fall of Industries

Firms seeking economic profit explains rise and fall of industries.

Hair Salon Services and Aerobic Fitness Markets

Change in Tastes: Long hair & fitness “IN THING”
Initial Equilibrium in the Market for Haircuts

<table>
<thead>
<tr>
<th>Haircuts/day</th>
<th>Price ($/haircut)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td>15</td>
<td>S</td>
</tr>
</tbody>
</table>

Initial Equilibrium in the Markets for Aerobics Classes

<table>
<thead>
<tr>
<th>Classes/day</th>
<th>Price ($/class)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>10</td>
<td>D</td>
</tr>
</tbody>
</table>

Change in Tastes Shifts Demand

<table>
<thead>
<tr>
<th>Haircuts/day</th>
<th>Price ($/haircut)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td>15</td>
<td>S</td>
</tr>
</tbody>
</table>

Price of haircuts fall the price of aerobics classes rise.

New Market Prices: Loss in Haircut Profit in Aerobics

<table>
<thead>
<tr>
<th>Haircuts/day</th>
<th>Price ($/haircut)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td>15</td>
<td>S</td>
</tr>
</tbody>
</table>

Summary

Negative Economic Profit in Hair Salon Industry leads to ...

Positive Economic Profit in Aerobic Industry leads to ...

Graph what happens: entry, exit, LR.

Economic profits consider economic costs, which include opportunity costs (the implicit costs).

Firm: implicit costs are “normal profit” they can earn using their resources (land, labor, capital)

Seeking economic profit, free entry and exit in a PC industry leads to $P = MC = \text{min ATC}$.

$P=\text{min ATC}$ means $P$ is lowest it can be. Firm just earns normal profit. Good is cheapest it can be for a consumer.
Welfare in PC Market

Questions We Can Answer
1) Why is perfect competition good for society?
2) What effects do interventions like taxes, subsidies, and price controls have on society’s welfare?
3) Who bears the burden of a tax?
4) What goods should be taxed?

Real Questions We Can Answer
1) Should taxes be collected on luxury goods or necessities like gasoline?
2) Will a tax on cigarettes reduce quantity demanded for cigarettes more for teens or adults?
3) Will price controls on housing and heating oil really help the poor?

Market Equilibrium: No Interventions

Excess Demand: “Cash on the table”
\( Q_s = 2 \) exchanged in market

Excess Supply: “cash on the table”
\( Q_d = 2 \) exchanged on market

Market Equilibrium: No Interventions
CS + PS Maximum
**Interventions in Market**

**Price Ceiling**: Intervention in Market that mandates a maximum price. Eg. rent control,
It must be below equilibrium, otherwise has no effect as a maximum price

**Price Floor**: Intervention in market that mandates a minimum price. It must be above equilibrium, otherwise has no effect.
Eg. Agricultural price support, minimum wage

---

**Interventions in Market**

**Per Unit Tax**: An amount of money collected on each unit of good bought and sold.
In general reduces quantity demanded/supplied.
Brings revenue to government for use in providing public services or transfer programs.

**Per Unit Subsidy**: An amount of money government gives out on each unit of good bought and sold.
In general, increases quantity demanded/supplied. Expenditure for government.

---

**Effect of Price Ceiling**

![Graph showing the effect of a price ceiling](image)

**Price Ceiling** = $1.00

**Effect of Subsidy**

![Graph showing the effect of a subsidy](image)

**Govt Expd = $6M**

---

**Price Controls: Change in Surplus**

<table>
<thead>
<tr>
<th>Free Market</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS</td>
<td>A + B + C</td>
</tr>
<tr>
<td>PS</td>
<td>D + E + F</td>
</tr>
<tr>
<td>Total</td>
<td>A + B + C + D + E + F</td>
</tr>
</tbody>
</table>

Change = Control - Free = - C - E
Waste is DWL = C + E

---

**Subsidy: Change in Surplus**

<table>
<thead>
<tr>
<th>Free Market</th>
<th>Subsidy</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS</td>
<td>A</td>
</tr>
<tr>
<td>PS</td>
<td>0</td>
</tr>
<tr>
<td>Govt</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>A</td>
</tr>
</tbody>
</table>

Change = Subsidy - Free = - C
Waste is DWL = C
Tax in Graph: Supply Curve Before & After Tax

Plus tax at each level output raises MC by tax

Effect of a Tax on Equilibrium Quantity and Price

In General:
P inc by less than amount of tax

Effect of a Tax: Perfectly Elastic Supply

Assume a tax levy of $100 tax/car

Here:
P inc by amount of tax

Deadweight Loss (DWL) Caused by a Tax

Loss of CS & PS

Burden of Tax: Perfectly Inelastic Demand
Entire burden on consumer

Burden of Tax: Perfectly Inelastic Supply
Entire Burden on Producer

Can't raise price. Raise price, get excess supply.
Burden of Tax: Perfectly Elastic Supply
Entire Burden on Consumer

\[ P_t = P_0 + \text{tax} \]
\[ Q_t = Q_0 \]

Elasticity of Demand and DWL from Tax

\[ S + T \]

D1

1.60

D2

greater elasticity of demand → greater DWL

Elasticity of Supply and DWL from Tax

\[ S_1 + T \]

\[ S_2 + T \]

greater elasticity of supply → greater DWL

Burden & DWL

Distortion: Change in Behavior due to tax
Tax reduces quantity demanded (except inelastic)
Lower distortion gets lower DWL.
Quantity falls more for elastic demand & supply
Quantity falls less for inelastic demand & supply

Burden: Reduction in surplus from tax
Price rises more, more burden on consumer
 Inelastic demand, Elastic Supply
Price rises less, more burden on producer
 Elastic Demand, Inelastic Supply

Examples
Cigarettes: teens versus adults
Necessity vs luxury goods
gasoline vs yachts
Addiction goods
“Sin” Goods
Land

Summary
A perfectly competitive market with no interventions or restrictions maximizes the sum of producer and consumer surplus
Interventions such as price controls, taxes and subsidies are associated with wasted surplus, in general.
Such interventions may be necessary for other social goals, however. There may be better ways to achieve the goals.