Announcements

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Problem set 3 up later today.

Discuss Scores on midterm Monday lecture

Start Macro next time. Lots of reading. Stick to required pages..

About Exam

Econ 1 Student

Me	No study	Study a lot
reasonable	2, 50s	2, 90s
challenging	1, 30s	1, 80s

About Exam

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Exam Questions

NYT, July 11 Universities to Share Patented Work on Crops

WSJ, June 18, Natural-Gas Prices Rock U.S.'s Chemical Industry

WSJ, June 27 Amid Fight Over Teen Drinking, Panel Weighs New Alcohol Tax

Role of Government

Enhance Efficiency

Enhance Equity

Make / enforce Laws / Institutions

Role of Government

Efficiency: Increase size of pie, remove DWL

Equity: share pie, redistribute

Laws: collect tax, property rights

Institutions: courts, police, government agencies, etc

Public Goods

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· Private Good: Excludable so can charge price and MB & MC determine P, Q

Public Good: Non-rival and non-excludable

public park
public security (street light, airport security)
national defense
sanitation / garbage collection services

Public Goods

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Public Good Financing
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Private: donation
contracting (garbage, airport security)

Public: tax
head
proportional
progressive/regressive

Public Goods

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Tax
. head: flat amount
proportional: fixed % of income
progressive: increasing % of income
regressive: decreasing % of income

eg Head Tax of $1
Income = 10 (10%)
Income = 100 (1 %)

so, regressive

Public Goods

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Lecture 6: example from problem 1 chapter 15
.
Finance neighborhood security guard

WTP > cost of guard, optimal to have guard

Head tax $60 each (regressive)

Fails to get financed since exceeds res price
of one resident

Greater chance of financing with prop or prog tax

Externality

Eg. Pollution

Private: bargain/negotiation
Coase
(zero transaction cost, property rights)

Public: tax, standard, auction permit

Externality

Eg. Private Bargain

Chapter 11, problem 8, Barton & Statler

	Soundproof	Not Soundproof
Gain to B	$100	$150
Gain to S	$120	$80

Barton has right to Pollution

Statler has right to Pollution-free

Externality

	Soundproof	Not Soundproof
Gain to B	$100	$150
Gain to S	$120	$80

<u>B has right to Pollution</u>
S is victim & considers bribe
has to bribe 50, but gain is only 40
Pollution: B=150, S=80, surplus = 230
<u>S has right to Pollution-free</u>
B is victim & considers bribe
has to bribe 40, and gain is 50
Pollution: B=110, S=120, surplus=230
Doesn't matter who has right.

Externality

Example with no private bargaining, transaction cost high. Firms that pollute & many victims

No Regulation

Regulation with standard (not least cost)

Regulation with tax (least cost),
optimal tax trial & error

Regulation with auction permit (least cost, no info problem)

Costs and Emissions for Different Production Processes

Process (smoke)	A (4 tons/day)	B (3 tons/day)	C (2 tons/day)	D (1 ton/day)	E (0 tons/day)
Cost to Sludge Oil ($/day)	100	200	600	1,300	2,300
Cost to Northwest Lumber ($/day)	300	320	380	480	700

Scenario I

No regulation: firm has right to pollute

4 tons each

Costs and Emissions for Different Production Processes

What is the least costly way to get 4 Tons Total?

Process (smoke)	A (4 tons/day)	B (3 tons/day)	C (2 tons/day)	D (1 ton/day)	E (0 tons/day)
Cost to Sludge Oil ($/day)	100	200	600	1,300	2,300
Cost to Northwest Lumber ($/day)	300	320	380	480	700

Scenario II

Regulation Standard: 2 Tons each

MC Abatement:
S O = 600 - 100 = 500
N L = 380 - 300 = 80 MC abatement = 580

Costs and Emissions for Different Production Processes

What is the least costly way to get 4 Tons Total?

Process (smoke)	A (4 tons/day)	B (3 tons/day)	C (2 tons/day)	D (1 ton/day)	E (0 tons/day)
Cost to Sludge Oil ($/day)	100	200	600	1,300	2,300
Cost to Northwest Lumber ($/day)	300	320	380	480	700

Scenario III

Regulation Tax: 40/ton tax (By Trial & Error)

MB Abatement = 40 per ton
MC Abatement = additional cost of cleaner technology

- SO uses *A* *(40 < 100)*
- NL uses *B* *(40 > 20)* Pollution = 7 tons

Costs and Emissions for Different Production Processes

What is the least costly way to get 4 Tons Total?

Process (smoke)	A (4 tons/day)	B (3 tons/day)	C (2 tons/day)	D (1 ton/day)	E (0 tons/day)
Cost to Sludge Oil ($/day)	100	200	600	1,300	2,300
Cost to Northwest Lumber ($/day)	300	320	380	480	700

Scenario IV

Regulation Tax : 101 per ton

SO uses *B* *(101 > 100)*
NL uses D (101 > 20, 60, 100)

MC Abatement = 280

SO = 100
NL = 180
Least cost

Costs and Emissions for Different Production Processes

What is the least costly way to get 4 Tons Total?

Process (smoke)	A (4 tons/day)	B (3 tons/day)	C (2 tons/day)	D (1 ton/day)	E (0 tons/day)
Cost to Sludge Oil ($/day)	100	200	600	1,300	2,300
Cost to Northwest Lumber ($/day)	300	320	380	480	700

- Scenario V
- Regulation Auction Permit: 4 permits (1 permit = 1 ton)
- Firm has zero right to pollute, has to buy rights (bribe), Bid=MB pollution
- Sludge bid: 1 @ $1,000, 2 @ $700, 3 @ $400, 4 @ $100
- Northwest bid: 1 @ $220, 2 @ $100, 3 @ $60, 4 @ $20

Costs and Emissions for Different Production Processes

How much will pollution permits sell for?

Process (smoke)	A (4 tons/day)	B (3 tons/day)	C (2 tons/day)	D (1 ton/day)	E (0 tons/day)
Cost to Sludge Oil ($/day)	100	200	600	1,300	2,300
Cost to Northwest Lumber ($/day)	300	320	380	480	700

- Government set the opening bid at $90
  - SO buys 4 permits NL buys 2 permits, 6 permits
- Government will raise the price until quantity demanded = 4 permits, raise price to $101
  - SO buys 3 (B) , NL buys 1 (D), MC Abatement = 280

Externality

Example with no private bargaining, transaction cost high. Firms that pollute & many victims

No Regulation 8 tons

Regulation with standard 2 ton each MC=580

Regulation with tax=$101, MC=280

Regulation with auction permit MC=280

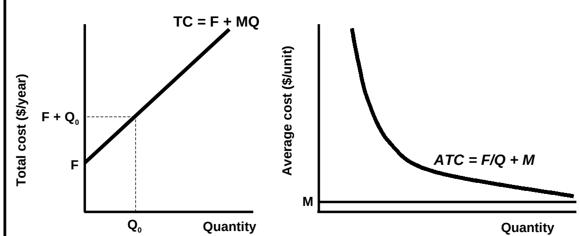
Natural Monoply

Monopoly due to economies of scale

Everywhere declining AC (so MC < AC)

Cheaper for 1 firm to produce many units
One firm is monopoly (monopoly DWL)

Economies of Scale: Declining ATC, ATC > MC



(Special Form of TC)

ATC Falls
ATC > MC Everywhere

Natural Monoply

Regulate: force to produce more
force to sell at below monopoly price

Problem: what firm is a natural monopoly

public utility (ok)

railroad (ok) , trucking (no)

Natural Monoply

Regulate:

Set price = AC

problem that firm inflates cost

Incentive Regulation

Govt sets regulated price for several years & share profit/loss with consumer

if costs low, firm keeps profit & shares
if costs high, firm absorbs losses & shares

Redistribution

Distribution of Income
according to Rawls
veil of ignorance
ideal=tend to equality

Distribution of Wealth
according to Bill Gates Sr
wealthy got wealthy by relying on
govt institutions & infrastructure
ideal=reduce inequality

Redistribution

Distribution of Income

	1960	2001
bot 20%	4.3	4.3
next 20%	12.2	9.9
next 20%	17.8	15.6
next 20%	24.0	23.0
top 20%	41.3	47.2 (almost half)
top 5%	15.9	20.7*

*1997

Redistribution

Policies that aim to equalize incomes:

Minimum wage

Means Tested Transfer Programs

AFDC, Personal Responsibility Act
Medicaid

Other Means Tested Programs
EITC (tax credit for low income)

Summary: Government Role

Government enhances efficiency and equity and makes & enforces laws.

Whether government should have role should follow cost-benefit criterion, ultimately

Production and Consumption Possibilities and the Benefits of Trade

- A country's PPC shows the quantities of different goods that its economy can produce.
- Consumption Possibilities
  - The combinations of goods and services that a country's citizens might feasibly consume

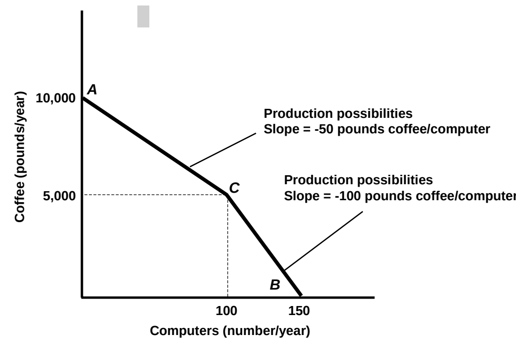
Production and Consumption Possibilities and the Benefits of Trade

- In a closed economy:
  - Society's production possibilities = consumption possibilities.
  - If a country is self-sufficient, it is called *autarky.*

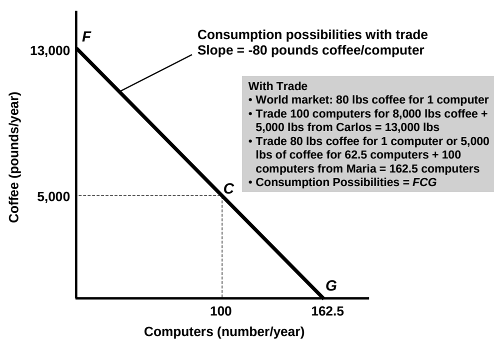
Production and Consumption Possibilities and the Benefits of Trade

- In an open economy:
  - The society's consumption possibilities are typically greater than its production possibilities.

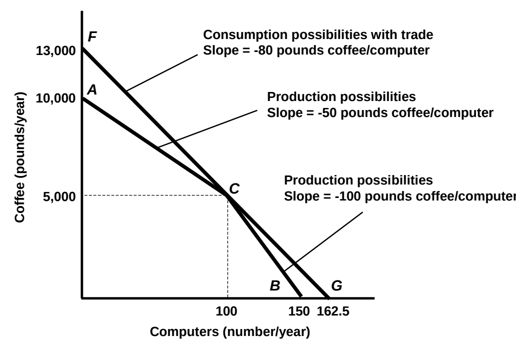
Brazil's Consumption Possibilities with Trade



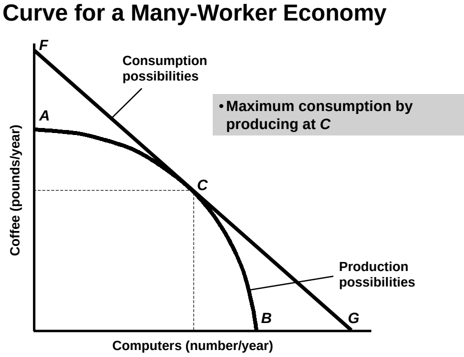
Brazil's Consumption Possibilities with Trade



Brazil's Consumption Possibilities with Trade



Consumption Possibilities Curve for a Many-Worker Economy



Production and Consumption Possibilities and the Benefits of Trade

- Economic Naturalist
  - Does "cheap" foreign labor pose a danger to high-wage economies?

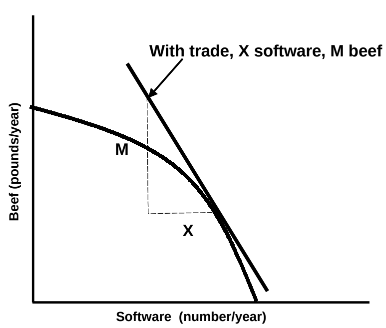
Production and Consumption Possibilities and the Benefits of Trade

- Economic Naturalist
  - Scenario
    - U.S. and Fredonia produce software and beef.
    - Real wages in Fredonia are lower than in the U.S.
    - Fredonia is half as productive as the U.S. in beef production.
    - Fredonia is one-tenth as productive in software production.

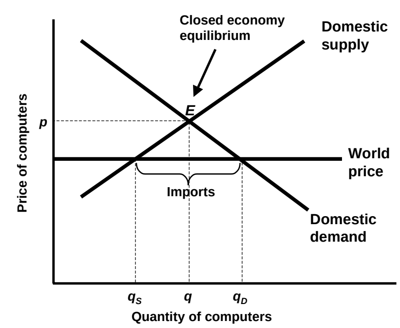
Production and Consumption Possibilities and the Benefits of Trade

- Economic Naturalist
  - Outcome
    - Fredonia has a comparative advantage in beef.
    - U.S. has a comparative advantage in software.
    - The U.S. will trade software for beef and increase its consumption of both.
    - Employment in the software industry in the U.S. increases and employment in the beef industry will decrease.

Consumption Possibilities Curve for US



The Market for Computers in Brazil

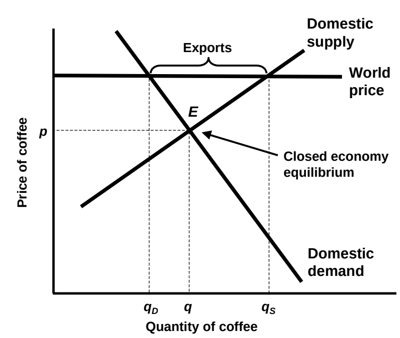


ED

A Supply and Demand Perspective on Trade

- *If the price of a good or service in a closed economy is greater than the world price, and that economy opens itself to trade, the economy will tend to become a net importer of that good or service.*

The Market for Coffee in Brazil



ES

A Supply and Demand Perspective on Trade

- *If the price of a good or service in a closed economy is lower than the world price, and that economy opens itself for trade, the economy will tend to become a net exporter of that good or service.*

A Supply and Demand Perspective on Trade

- Observations of the Mutually Beneficial Gains from Trade
  - Countries will profit by exporting the goods and services for which they have a comparative advantage.
  - The revenue from the exports are used to import goods and services for which they do not have a comparative advantage.

A Supply and Demand Perspective on Trade

- Observations of the Mutually Beneficial Gains from Trade
  - The markets will ensure that goods will be produced where opportunity cost is lowest.
  - The consumption possibilities will be maximized.

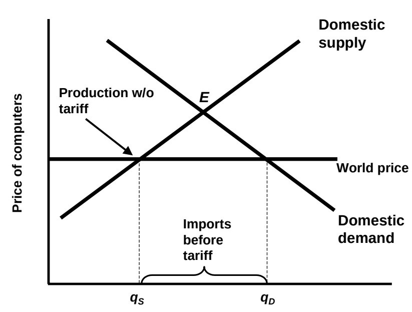
A Supply and Demand Perspective on Trade

- Winners and Losers from Trade
  - Winners
    - Consumers of imported goods
    - Producers of exported goods
  - Losers
    - Consumers of exported goods
    - Producers of imported goods

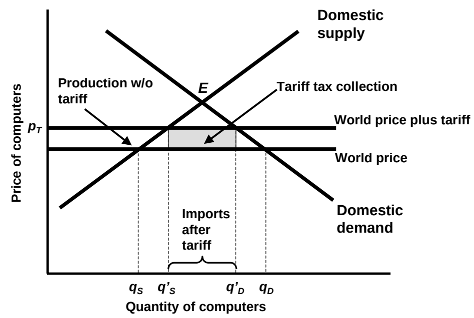
A Supply and Demand Perspective on Trade

- Protectionism
  - The view that free trade is injurious and should be restricted
- Tariff
  - A tax imposed on an imported good
- Quota
  - A legal limit on the quantity of a good that may be imported

The Market for Computers after the Imposition of an Import Tariff



The Market for Computers after the Imposition of an Import Tariff



A Supply and Demand Perspective on Trade

- Tariffs
  - The market for computers in Brazil:
    - Demand = $Q^D = 3{,}000 - 0.5\, P_C$
    - Supply = $Q^S = 1{,}000 + 0.5\, P_C$

A Supply and Demand Perspective on Trade

- Tariffs
  - Closed economy
    - Equilibrium price:
      - o $1{,}000 + 0.5\, P_C = 3{,}000 - 0.5P_C$
      - o P_C = \$2,000
    - Equilibrium quantity:
      - o 1,000 + 0.5(2,000) = 2,000 computers

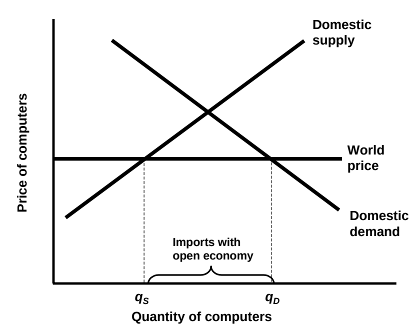
A Supply and Demand Perspective on Trade

- Tariffs
  - Open economy
    - P = world price = \$1,500
    - q_S = 1,000 + 0.5(1,500) = 1,750
    - q_D = 3,000 - 0.5(1,500) = 2,250
    - Imports = 2,250 - 1,750 = 500 computers/yr

A Supply and Demand Perspective on Trade

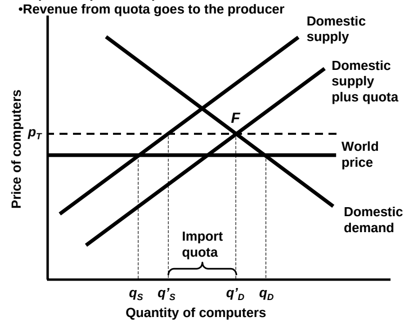
- Tariffs
  - Tariff imposed
    - Tariff = \$300/computer
    - P = world price + tariff = \$1,500 + \$300 = \$1,800
    - q_s = 1,000 + (0.5)(1,800) = 1,900 computers/yr
    - q_d = 3,000 = (0.5)(1,800) = 2,100
    - Imports = 2,100 - 1,900 = 200
    - Tariff revenue = \$300/computer x 200 computers/yr = \$60,000/yr

The Market for Computers after the Imposition of an Import Quota



The Market for Computers after the Imposition of an Import Quota

- Impact of quota = impact of tariff
- Revenue from quota goes to the producer



A Supply and Demand Perspective on Trade

- Quotas & Tariffs
  - Market effects of tariffs are the same.
  - Tariffs generate tax revenue.
  - Quotas generate revenue for the firms that hold an import license. Or (rents), if they bribe officials to get the license (eg in LDCs)

A Supply and Demand Perspective on Trade

- Effects of an import Quota
  - Without quota:
    - $q_S = 1{,}000 + 0.5P_C$
  - With a quota of 200 computers
    - $q_S = 1{,}000 + 0.5P_C + 200 = 1{,}200 + 0.5P_C$
    - $q_D = 3{,}000 - 0.5P_C$
    - Equilibrium = $1{,}200 + 0.5P_C = 3{,}000 - 0.5\,P_C$
    - Equilibrium price = $1,800

A Supply and Demand Perspective on Trade

- Effects of an import Quota
  - With a quota of 200 computers
    - Domestic quantity supplied
      - o 1,000 + 0.5($1,800) = 1,900 computers/yr
    - Domestic quantity demanded
      - o 3,000 - 0.5 ($1,800) = 2,100 computers/yr
    - Imports = 2,100 - 1,900 = 200
    - Revenue to the importers
      - o ($1,800 - $1,500) x 200 = $60,000

A Supply and Demand Perspective on Trade

- Other Barriers to Trade
  - Red-tape barriers
  - Regulations

A Supply and Demand Perspective on Trade

- The Inefficiency of Protectionism
  - Trade barriers are inefficient and reduce the size of the economic pie.
  - Because trade barriers benefit certain groups, and these groups may be well organized, they may be successful in lobbying for trade barriers.
  - The gains from trade could be used to assist groups that have been hurt by trade.