

Economics 404W

lecture 22

Professor Tybout
April 4, 2006

Note: Next writing assignment due in one week

Office hours will be moved to Wednesday morning 9-11 this week

Prof. Rodriguez-Clare will lecture on Thursday

Ad Valorem Duties (simple averages)

	India	China	Mexico	Japan	Canada	US
year	2002	2002	2003	2002	2002	2002
All goods	29.0	12.4	18.0	3.2	4.1	3.9
Agricultural goods	36.9	19.2	24.5	7.3	3.1	5.1
Non-agricultural goods	27.7	11.3	17.1	2.7	4.2	3.7

Source: World Trade Organization

Trade and domestic distortions

- The pro-XO argument is based on introductory trade theory.

assume: small country produces two types of goods

agricultural $Q_x = f(N, L_x)$

industrial $Q_y = g(K, L_y)$

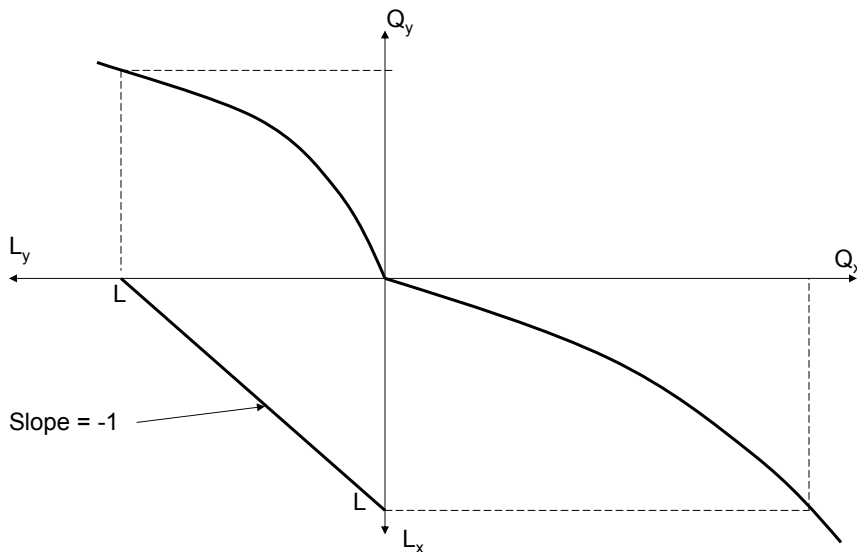
N = stock of land

K = stock of capital

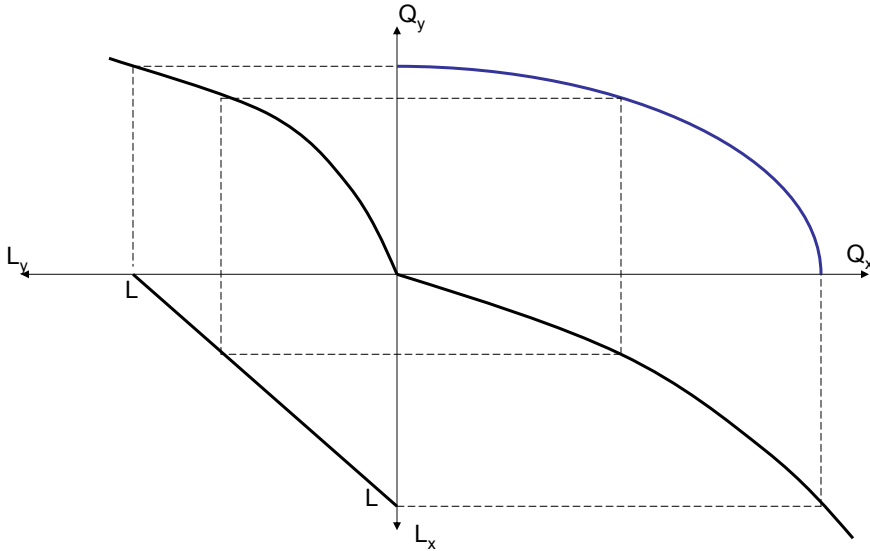
$L = L_x + L_y$ = stock of labor

Trade and domestic distortions: the

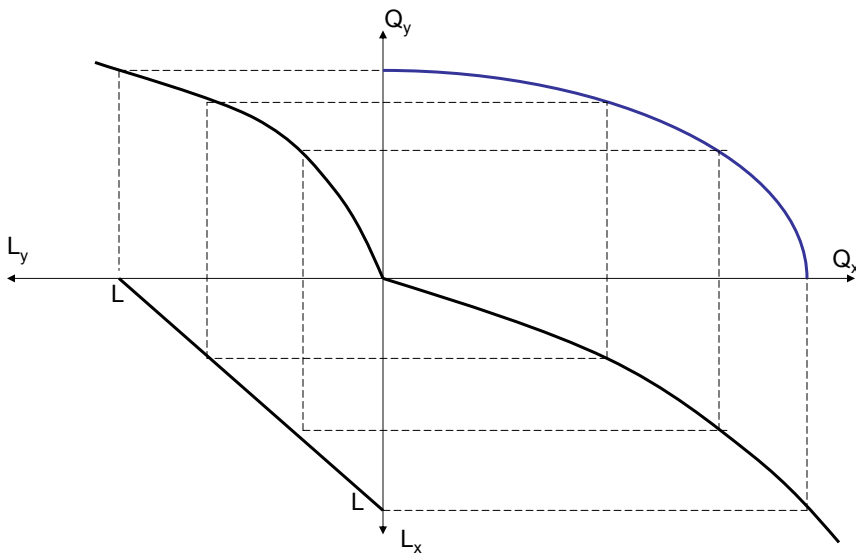
PPF



Trade and domestic distortions: the PPF



Trade and domestic distortions: the PPF



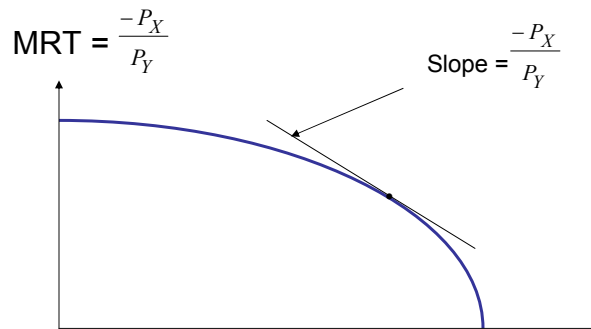
Shape of the PPF

- The slope of the PPF is called the marginal rate of transformation (*MRT*)
- The slope at any point can be expressed as the marginal product of labor in industry, divided by the marginal product of labor in agriculture. (Why?)

$$MRT = -\frac{MP_Y^L}{MP_X^L}$$

Identifying the production point

- If the relative price of agricultural goods is P_x/P_y , the economy will gravitate to the point on the PPF where:



Identifying the production point

Why?

- A worker in the X sector earns $P_X MP_X^L$ and a worker in the Y sector earns $P_Y MP_Y^L$. If these don't equate, workers have incentives to move toward the high return activity, driving down their marginal product there.

Determining prices

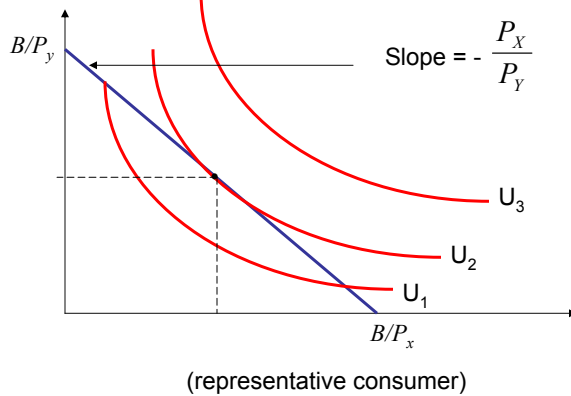
- Assume all consumers have identical, homothetic tastes. ("Homothetic" means that, given prices, the proportion in which they consume goods doesn't depend on their income).
- Each consumer has some budget B, which he or she can allocate between the two types of goods.

$$B = P_X C_X + P_Y C_Y$$

- Or, the trade-off between X and Y consumption is given by $C_Y = B/P_Y - (P_X/P_Y)C_X$

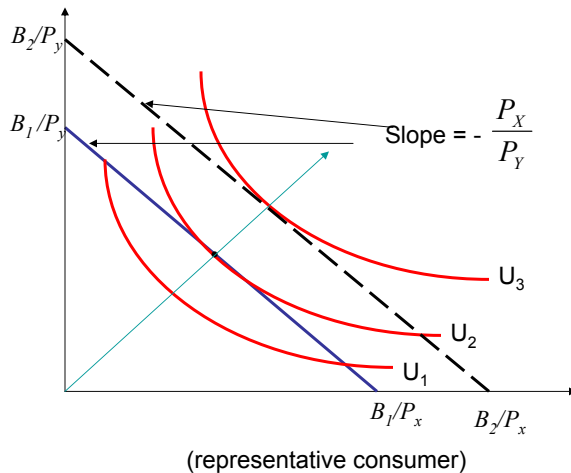
Determining prices

- Consumers maximize their utility by choosing the combination of X and Y consumption that allows them to reach their highest indifference curve, given their budget:



Determining prices

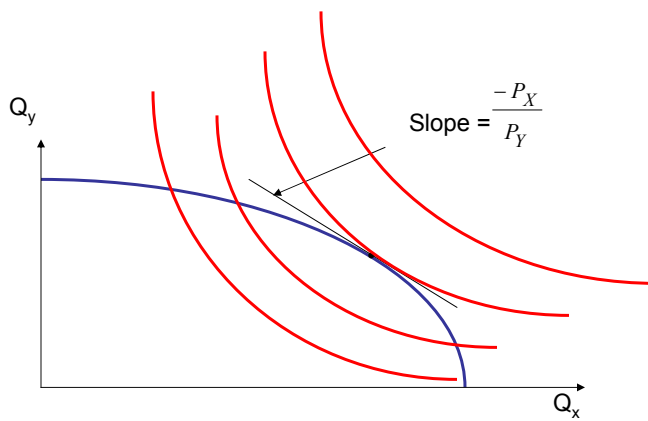
- Changing budgets doesn't change consumption proportions, so long as prices don't change:



Determining prices

- Each consumer chooses the same X/Y proportions at a given price ratio, and the consumption mix is unaffected by income reallocations. We can thus represent consumer behavior with a single set of economy-wide indifference curves.
- The equilibrium price ratio must occur at point where
 - The slope of the associated indifference curve (the Marginal Rate of Substitution, or MRS) matches the price ratio.
 - The slope of the PPF (MRT) matches the price ratio
 - Quantity supplied of each good matches quantity demanded.

Equilibrium in the absence of trade

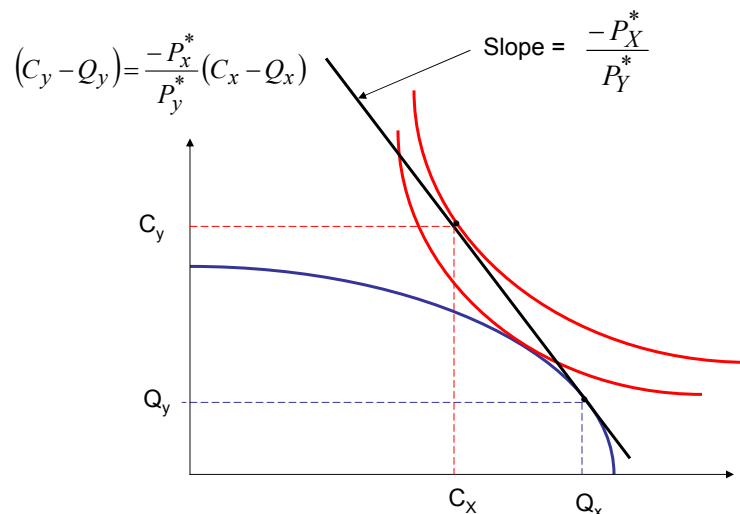


Equilibrium with free trade

- Now suppose this economy can trade at world prices, denoted by asterisks (*).
- Producers and consumers still behave the same, but it is no longer true that the quantity of domestic production must match the quantity of domestic consumption, good by good.
- Instead the value of goods produced and not consumed at home (i.e., goods exported) must match the value of goods consumed at home but not produced at home (i.e., goods imported):

$$P_x^*(Q_x - C_x) = P_y^*(C_y - Q_y), \quad (C_y - Q_y) = \frac{-P_x^*}{P_y^*}(C_x - Q_x)$$

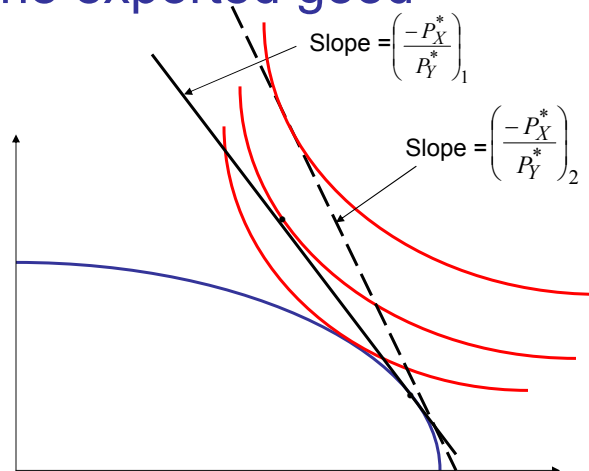
Equilibrium with free trade



Equilibrium with free trade

- With trade, the country can consume beyond its PPF.
- There are gains from trade, so long as world prices differ from the prices that would prevail if the country shut itself off from the rest of the world (“autarky” prices)

An increase in the world price of the exported good



Effects of tariffs on prices

- Consumers now pay $(1+t)P_y^*$ for imports of Y goods, and for domestically produced Y goods.
- Domestic Y producers therefore receive $P_y = (1+t)P_y^*$ per unit, and the domestic price ratio is:

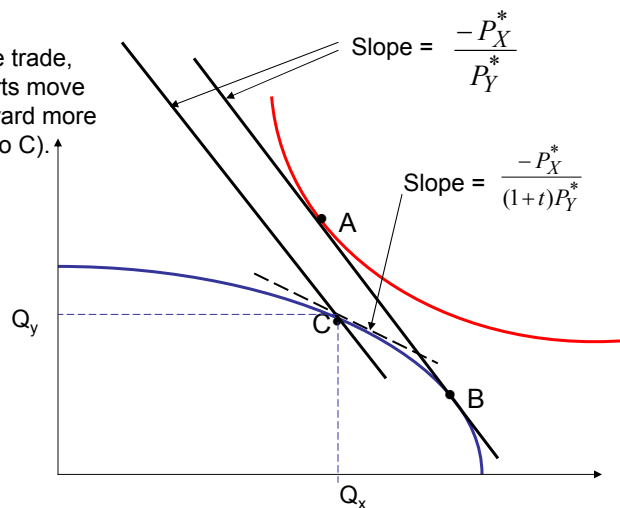
$$\frac{P_x}{P_y} = \frac{P_x^*}{(1+t)P_y^*}$$

- But domestic consumers and producers still must exchange Y for X at the world price ratio:

$$\frac{P_x^*}{P_y^*}$$

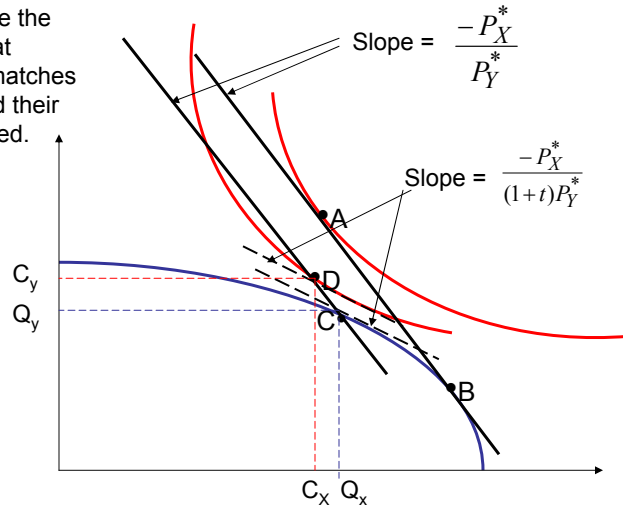
Equilibrium with free trade

Starting from free trade, tariffs on Y imports move the economy toward more Y production (B to C).



Equilibrium with free trade

Consumers choose the consumption mix at which their MRS matches relative prices, and their income is exhausted.



Effects of the tariff

- In the tariff-distorted equilibrium:
 - Producers equate the MRT to tariff-distorted prices
 - Consumers equate their MRS to tariff-distorted prices
 - Factor markets clear
 - Consumers spend all of their income
- The economy consumes on a lower social indifference curve, both because production has been shifted away from agric. production (which it is relatively good at), and because consumers have been discouraged from consuming industrial goods.