



The theory of international trade

Class overview

1. Autarky
2. Trade effects
3. Price effects



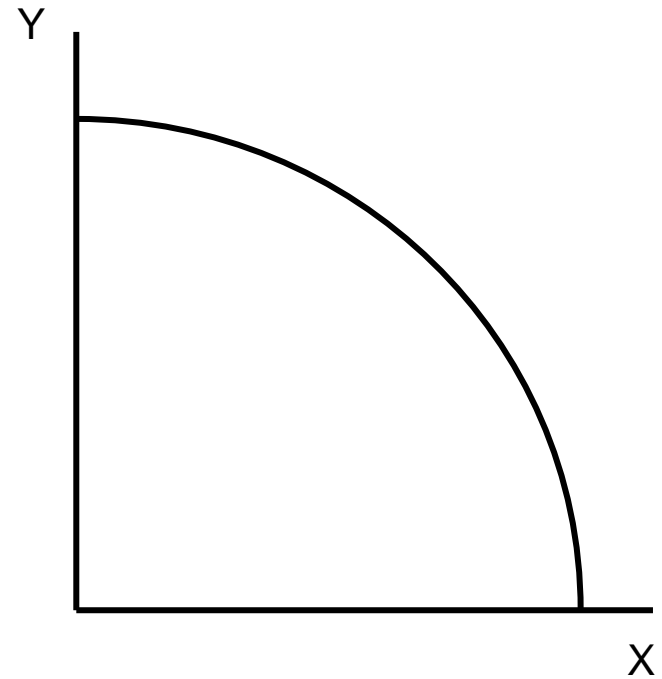


Increasing opportunity costs

- Increasing amounts of another item must be given up in order to release sufficient resources to produce one more unit of a given item.
- What leads to increasing opportunity costs?
 - Non-homogenous factors of production
 - Factors that are not used at constant fixed proportions in production

The production possibility frontier

- The marginal rate of transformation (MRT) increases as more units of good X are produced.
 - The marginal rate of transformation is another name for opportunity cost.
 - The value of MRT is given by the slope of the PPF.



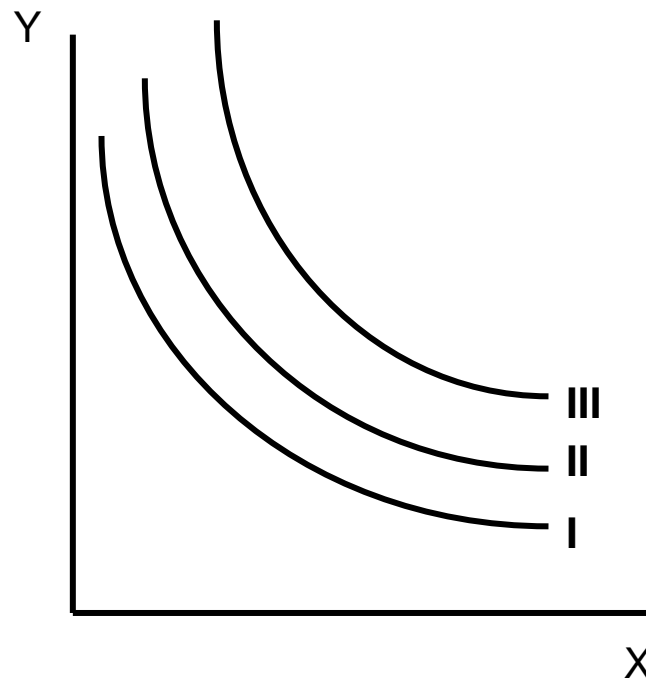


Community indifference curves

- A community indifference curve displays the combinations of two products that offer the community the same level of satisfaction.
- Characteristics of community indifference curves
 - Negative slope
 - Convex to the origin
 - Different curves do not cross

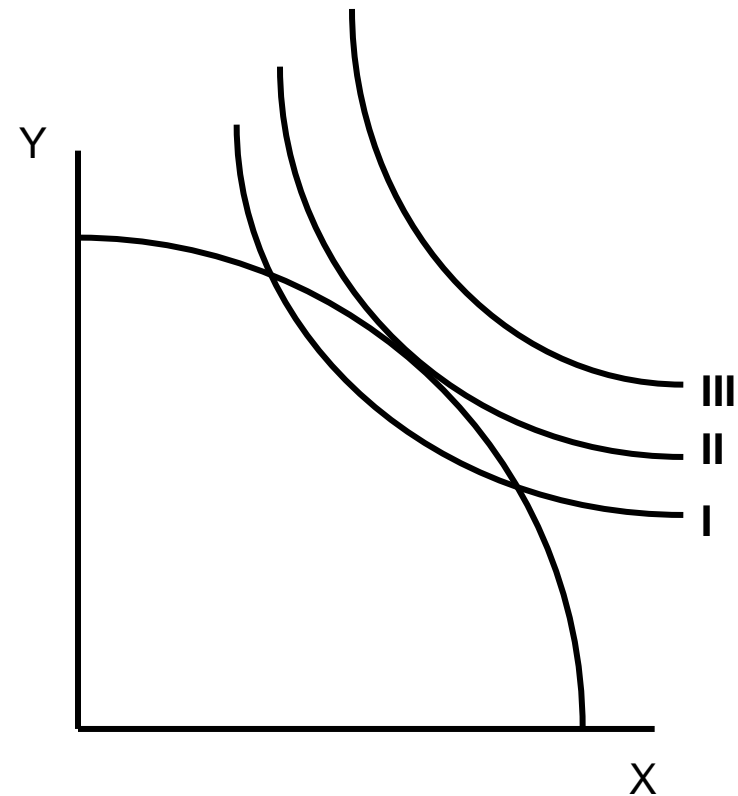
A community indifference curve map

- The marginal rate of substitution (MRS) falls as more of good X is consumed.
 - The MRS is the amount of one commodity that must be given up as one gains additional units of another commodity.



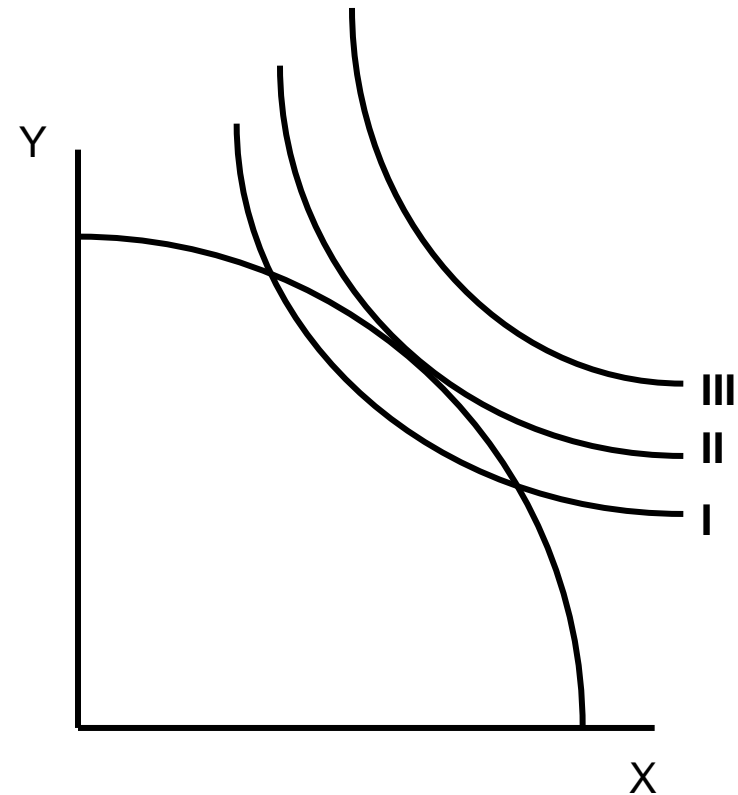
The autarky equilibrium

- Autarky exists in the absence of international trade.
- The autarky equilibrium occurs when maximum societal satisfaction has been obtained from available production.
- This will occur when one community indifference curve is tangent to the PPF.



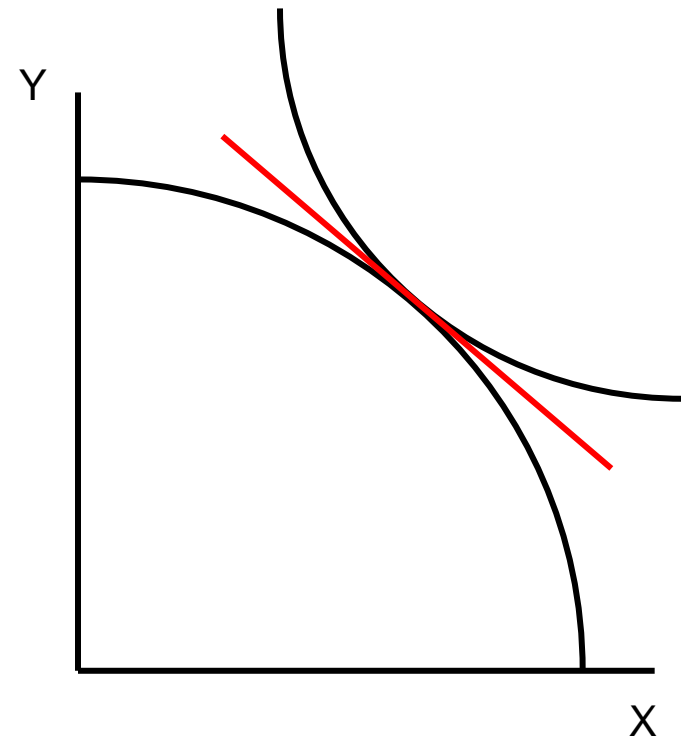
The autarky equilibrium

- For the indicated case, the equilibrium occurs at the tangency of community indifference curve II and the PPF.
- Given the convex, downward sloping, and non-intersecting nature of community indifference curves, only one such tangency will exist.



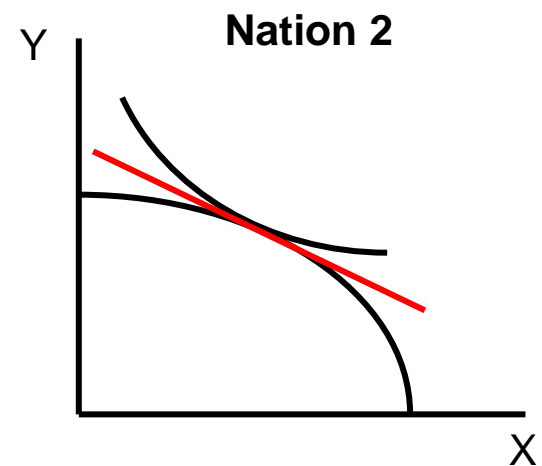
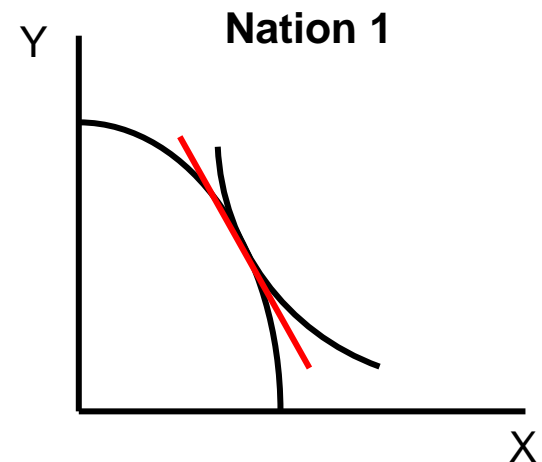
Relative prices

- The equilibrium relative commodity price in isolation (or autarky) is given by the slope of the tangent.
- The slope of this tangent is P_x/P_Y or the price of good X divided by the price of good Y.
- This slope also gives the opportunity cost of producing X in terms of foregone units of Y.



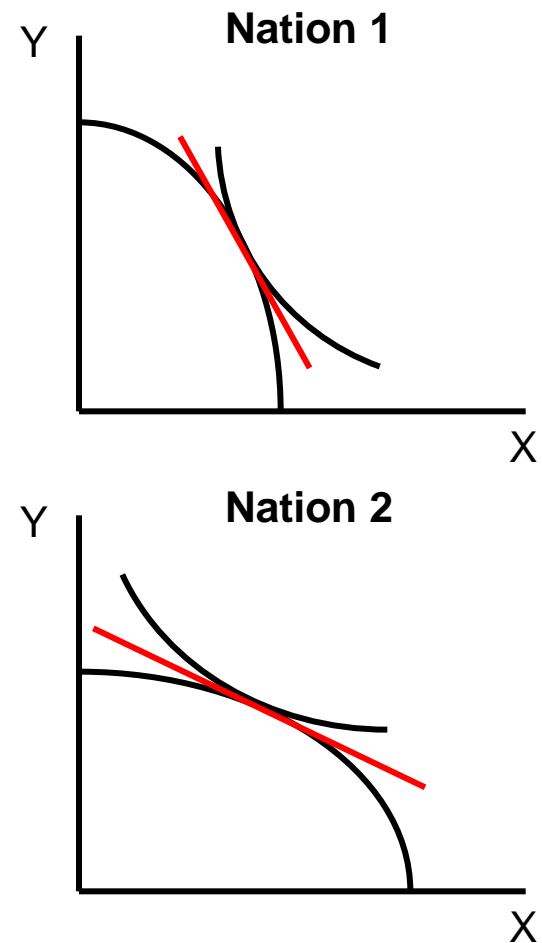
Trade in the standard model

- Trade in the standard model is driven by differences in the opportunity costs of production.
- Opportunity cost may be determined by the slope of the tangency at the autarky equilibrium point.



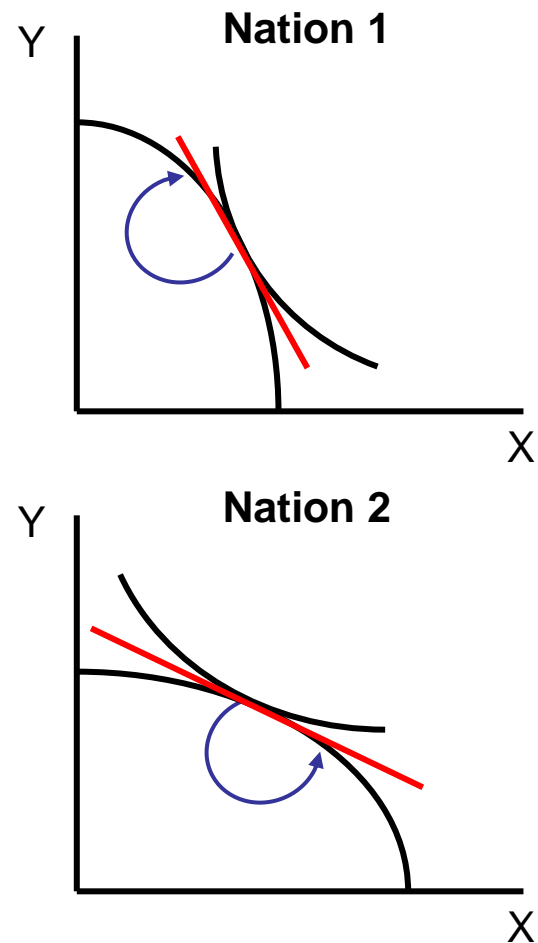
Trade in the standard model

- In this case, the slope of the tangent for Nation 2 is less (in absolute terms) so the opportunity cost of producing X in Nation 2 is less than the opportunity cost of producing X in Nation 1.
- In other words, Nation 2 has a comparative advantage in the production of X.



Trade in the standard model

- The comparative advantage of Nation 2 in X will lead it to produce more of X.
- Similarly, since Nation 1 must have a comparative advantage in Y it will produce more of Y once it begins to specialize and trade.



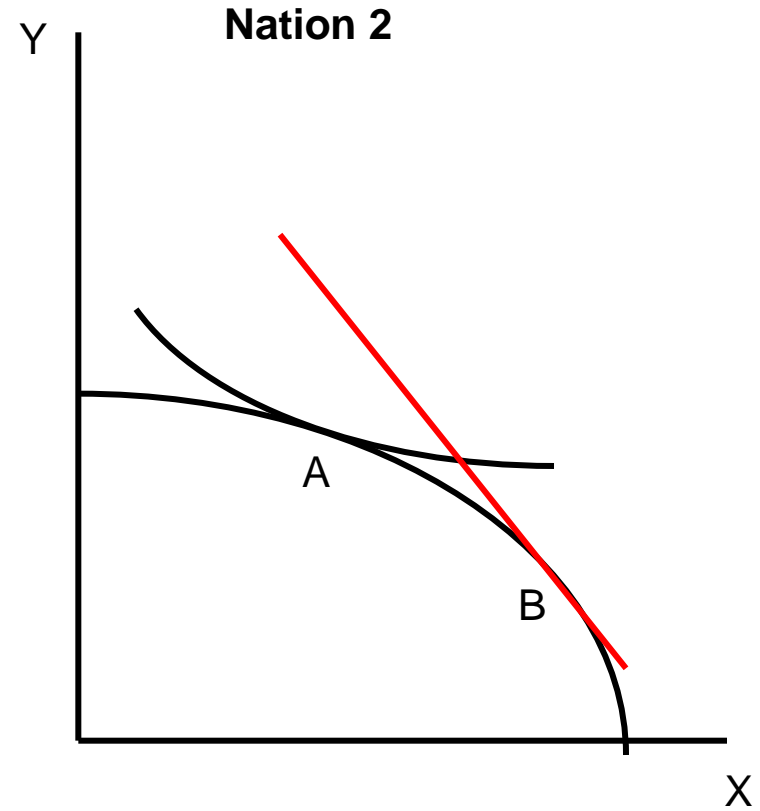
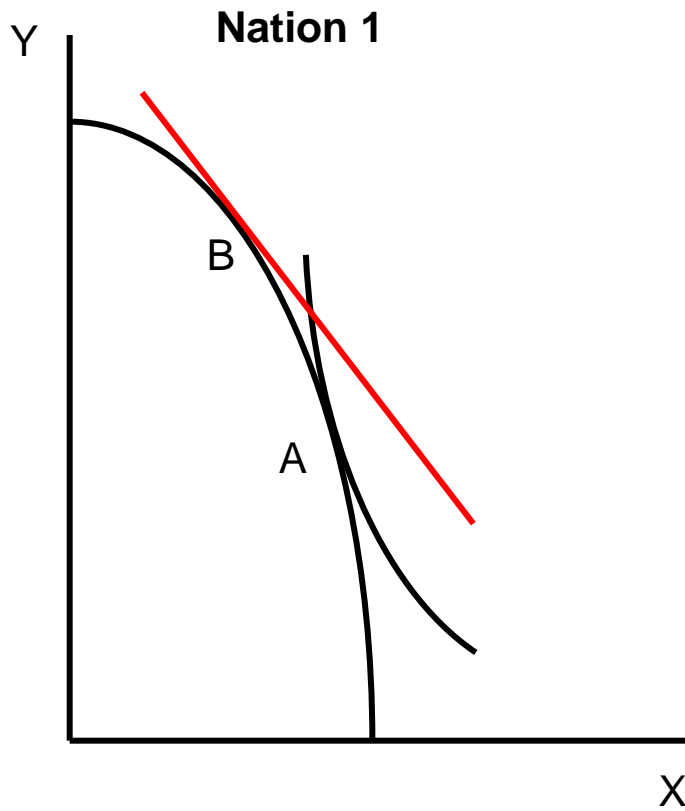


Trade in the standard model

- The movement of production and trade will move production from point A (see the following slide) to point B in both countries.
- At the new production point, both countries will be able to trade to a final consumption point on a higher community indifference curve than the original curve (point C).

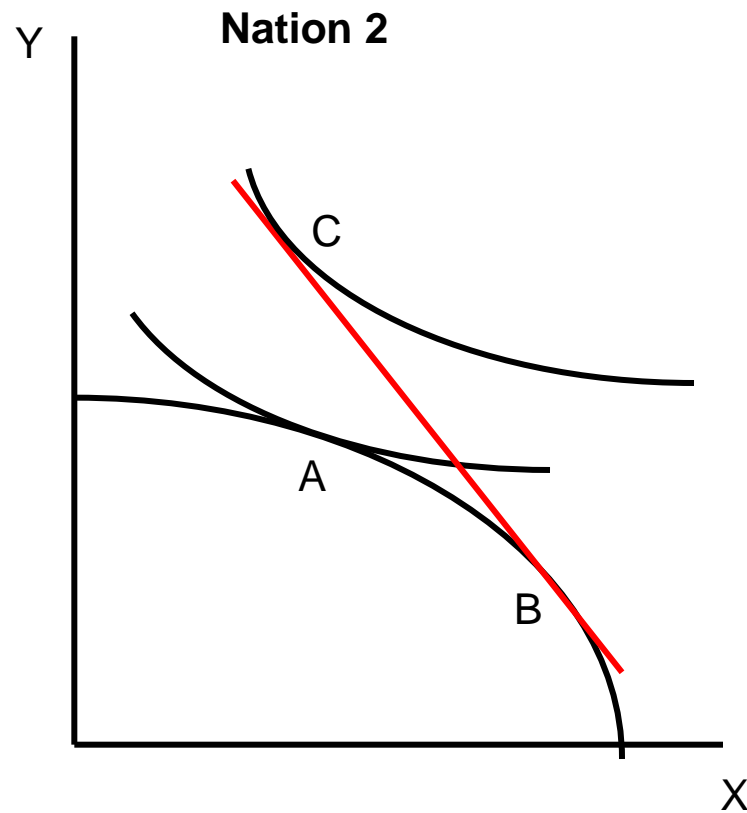
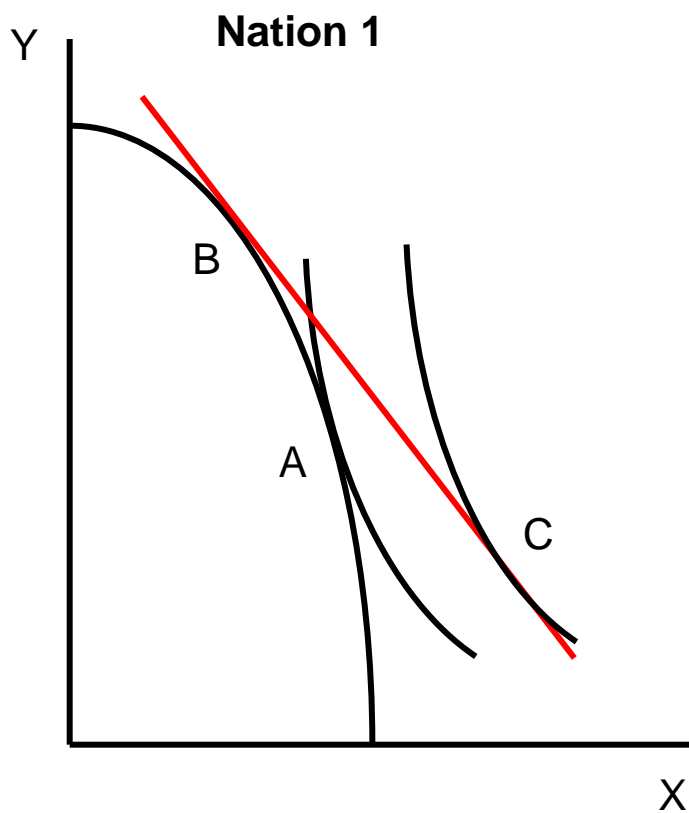


Trade in the standard model





Trade in the standard model



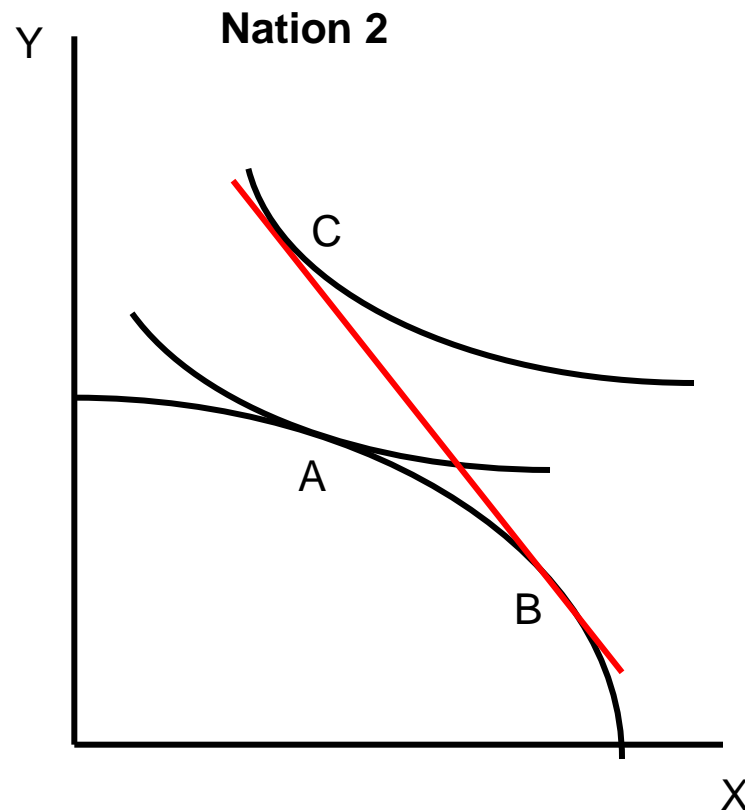
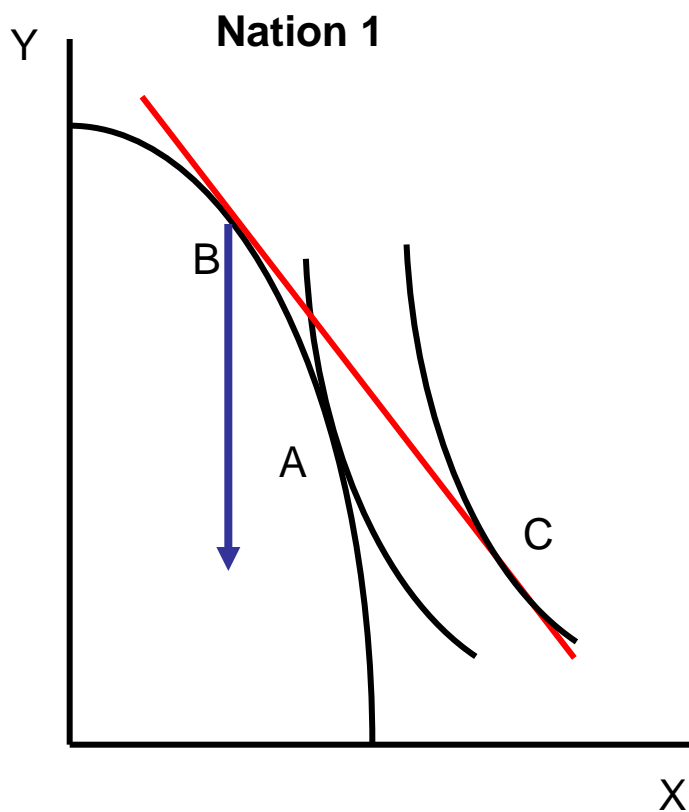


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- The movement of production and trade will move production from point A (see the following slide) to point B in both countries.
- At the new production point, both countries will be able to trade to a final consumption point on a higher community indifference curve than the original curve (point C).
- **At point C, Nation 1's exports of Y**



Trade in the standard model



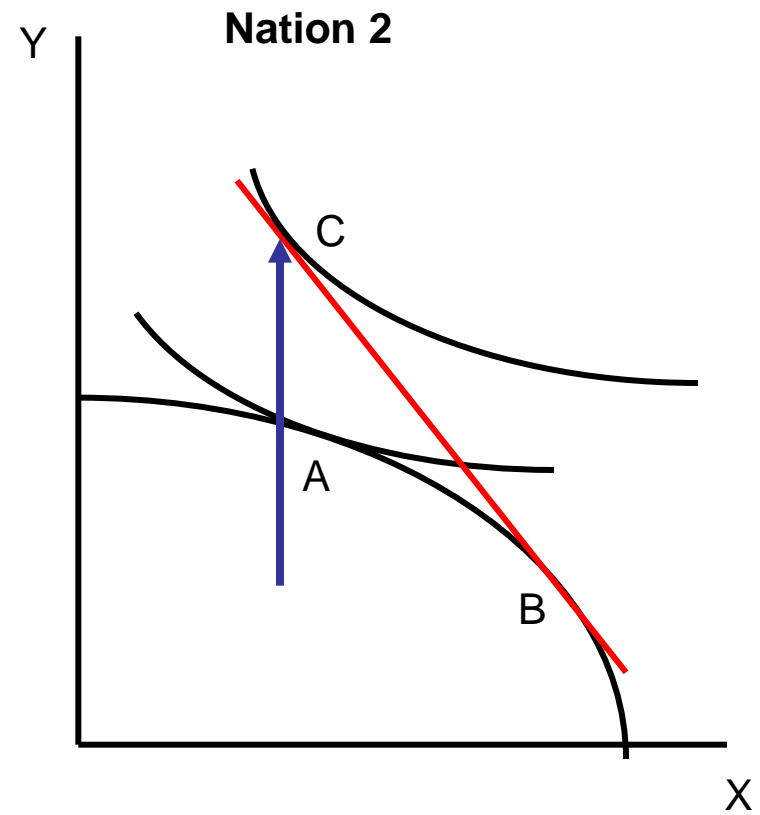
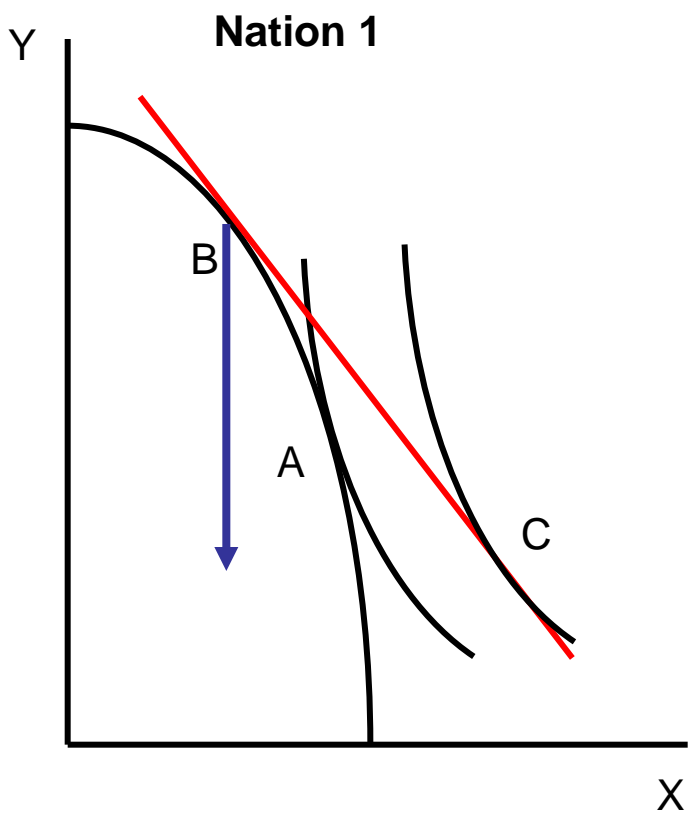


Trade in the standard model

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- At the new production point, both countries will be able to trade to a final consumption point on a higher community indifference curve than the original curve (point C).
- **At point C, Nation 1's exports of Y are matched by Nation 2's imports of Y.**



Trade in the standard model



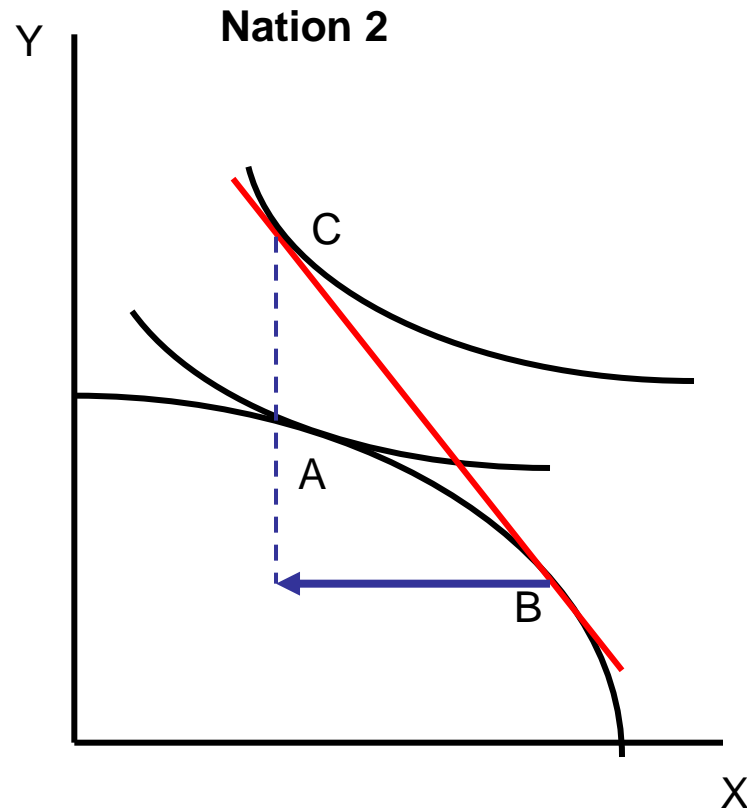
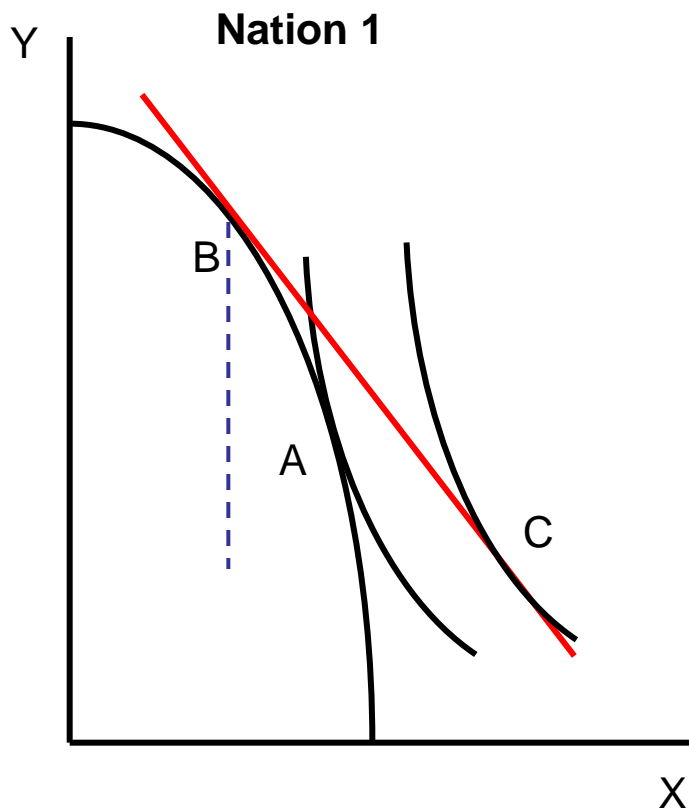


Trade in the standard model

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- At the new production point, both countries will be able to trade to a final consumption point on a higher community indifference curve than the original curve (point C).
- At point C, Nation 1's exports of Y are matched by Nation 2's imports of Y.
- **At the same time, Nation 2's exports of X**



Trade in the standard model



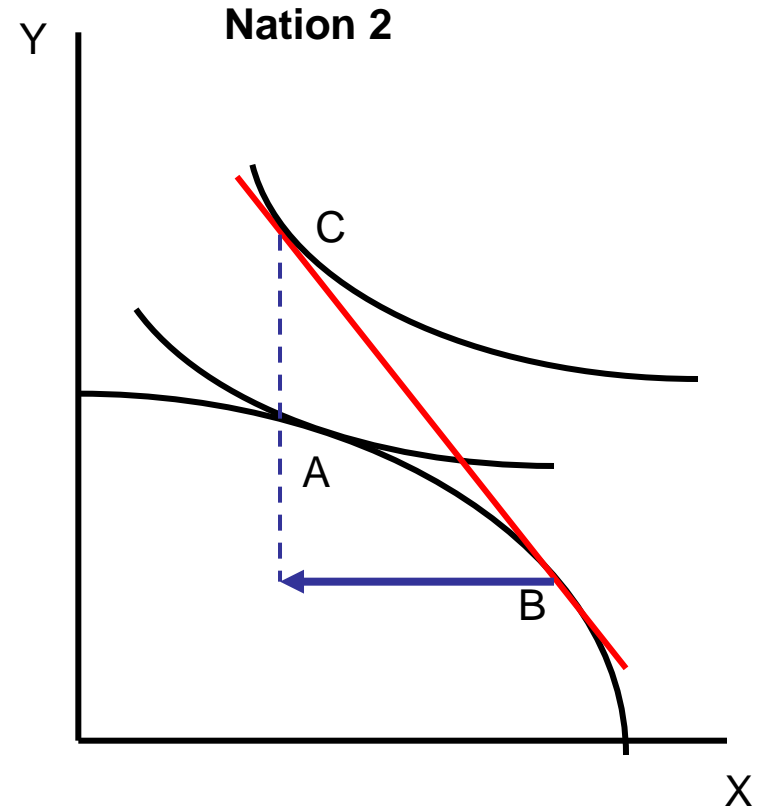
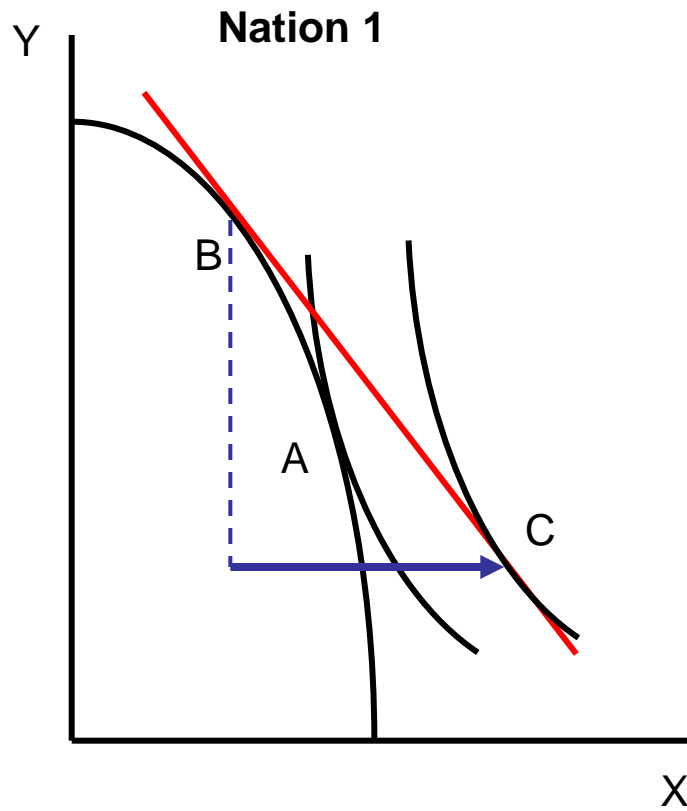


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- At the new production point, both countries will be able to trade to a final consumption point on a higher community indifference curve than the original curve (point C).
- At point C, Nation 1's exports of Y are matched by Nation 2's imports of Y.
- **At the same time, Nation 2's exports of X are matched by Nation 1's imports of X.**



Trade in the standard model





Two important points

- At the final production points (B) and consumption points (C), the marginal rates of transformation and marginal rates of substitution are the same in both economies.
 - This entails that relative prices in both nations are the same after trade.



Two important points

- At the final production points (B) and consumption points (C), the marginal rates of transformation and marginal rates of substitution are the same in both economies.
- Neither country completely specializes in the production of X or Y.
 - Complete specialization is an outgrowth of constant opportunity costs.
 - Since constant opportunity costs do not hold, complete specialization is unlikely to be seen.



The terms of trade

- The relative price of X and Y determine the terms of trade in a two country, two commodity setting.
- The **terms of trade** is the ratio of the index price of a nation's exports to the index price of its imports.
- An improvement in a country's terms of trade are typically viewed as beneficial.
 - An improvement in the terms of trade indicates that fewer export goods will need to be provided to purchase the same number of import goods.



The terms of trade

- The relative price of X and Y determine the terms of trade in a two country, two commodity setting.
 - For Nation 1 in the previous example, P_Y/P_X was its terms of trade.
 - For Nation 2 in the previous example, P_X/P_Y was its terms of trade.



Changing the employment mix

- The examples of trade demonstrate that specialization and trade will result in job losses in some sectors, but job gains in others.
- Does this mean a **loss of manufacturing jobs**?
 - It depends on a nation's comparative advantage
 - The experience of recent years points to the comparative advantage of the “industrialized” nations residing in services.
 - Hence, the expected movement of employment would be from manufacturing to the service sector.



Assumptions

- Competitive markets (Neoclassical view): Resources are fully employed and prices signal scarcity.
- Same technologies in the countries but different in the sectors.
- For the sake of brevity 2 countries 2 factors and 2 final goods.
- Factor mobility between sectors but not between countries.



The Heckscher-Ohlin theorem

- A nation will export the commodity whose production requires the intensive use of the nation's relatively abundant (and therefore, cheap) factor and import the commodity whose production requires the intensive use of the nation's relatively scarce (and therefore, expensive) factor.
- In other words, relative factor abundance drives comparative advantage and the pattern of trade.



The factor price equalization theorem

- International trade will bring about equalization in the relative and absolute returns to homogenous factors across nations.
- In other words, wages and other factor returns will be the same after specialization and trade has occurred.



Basic questions

- What does abundant mean?
- What does intensive mean?

We assume:

- Two countries (1 [Italy: rich of labor] and 2 [US: rich of capital])
- Two factors (K and L)
- Two final goods (Y [wine] and X [computer])



Demonstrating the H-O theorem

- Suppose there are two countries with identical technology and societal preferences.
- The nations differ in that one is relatively labor abundant while the other is relatively capital abundant.
 - Factor abundance is determined by the ratio of capital (K) to labor (L) available in the countries.
 - The country with the greater K/L ratio is defined as being capital abundant.



Demonstrating the H-O theorem

- The nations differ in that one is relatively labor abundant while the other is relatively capital abundant.
- Further, the commodities produced differ in factor intensity.
 - Factor intensity is determined by the ratio of capital (K) to labor (L) required for the production of the commodity.
 - The commodity requiring the greater K/L ratio per unit of production is defined as being capital intensive.

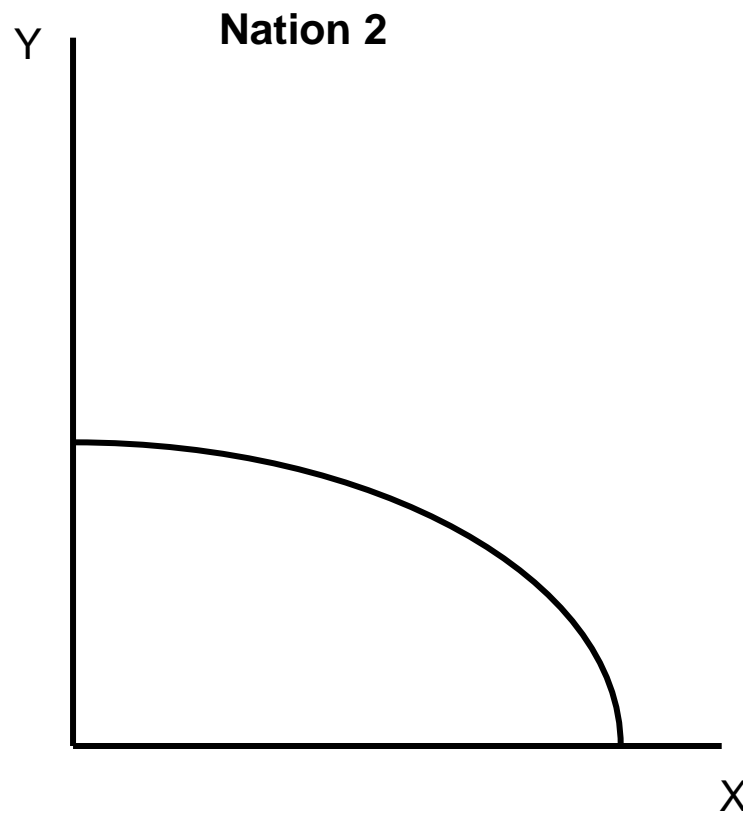
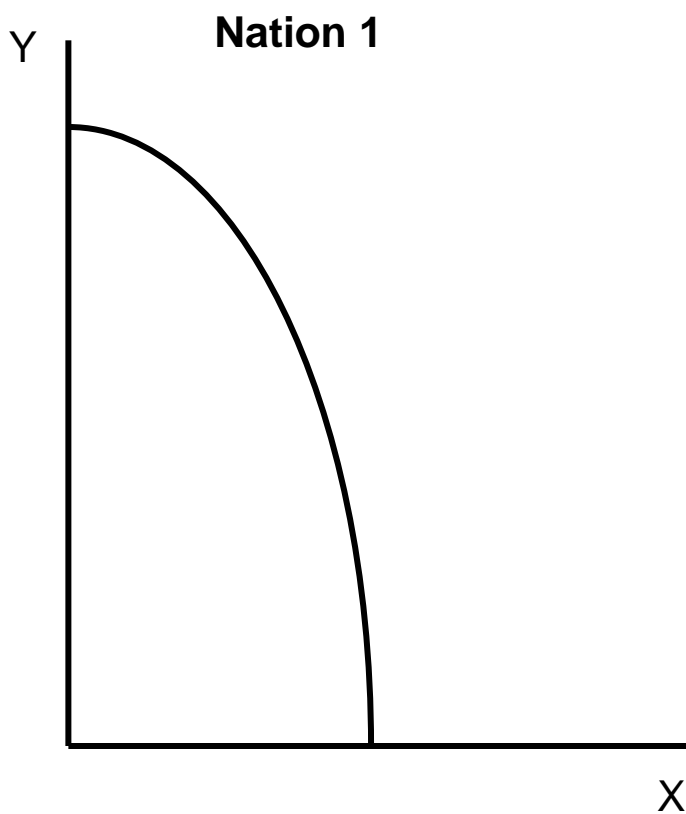


Demonstrating the H-O theorem

- Further, the commodities produced differ in factor intensity.
- Under these assumptions, the PPFs indicated on the next slide will show the relative productive potential of the trading nations if Nation 1 is labor abundant and Nation 2 is capital abundant while commodity Y is labor intensive while commodity X is capital intensive.

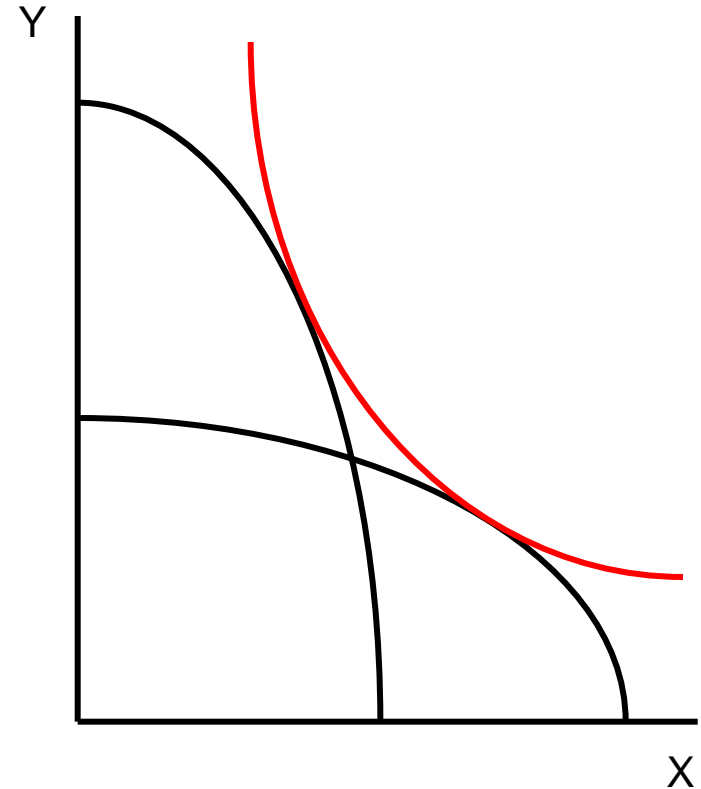


Demonstrating the H-O theorem



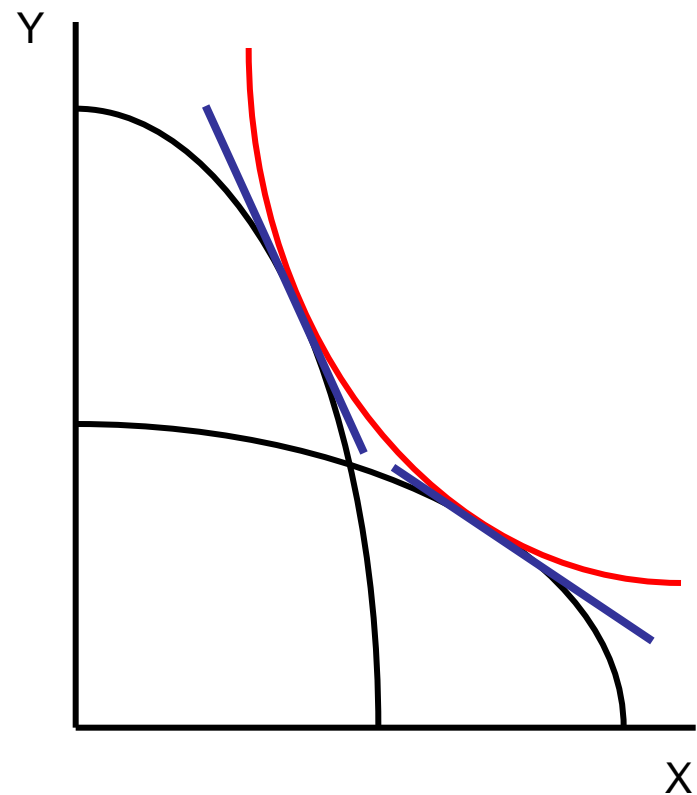
Demonstrating the H-O theorem

- For ease of presentation, the two PPFs may be overlaid in one diagram.
- Under the assumption of identical societal preferences, this yields a possible community indifference with the indicated shape.



Demonstrating the H-O theorem

- This combination of PPFs and community indifference curves establishes a higher opportunity cost for Nation 1 in the production of X.
- Using the logic of the standard model of trade this shows that Nation 1 will specialize in the production/export Y.





Factor price equalization

- In the H-O model of trade, the pattern of trade is driven by relative factor abundance.
- Labor abundant countries export goods that are labor intensive in their production.
- Capital abundant countries export goods that are capital intensive in their production.
- Exported commodities experience an increase in their price relative to the autarky situation.



Factor price equalization

- The **Stolper-Samuelson theorem** demonstrates that an increase in the relative price of a commodity raises the return of the factor used intensively in its production.
- At the same time, the return of the relative scarce factor will fall.
- Thus, the labor abundant country will see an increase in wages, but a fall in the return to capital while the capital abundant country will experience the opposite pattern of change.



Implications of FPE

- Developed nations are expected to be capital abundant.
- Therefore, following the opening of trade the return to capital in the developed countries is expected to increase and wages are expected to fall.
- This pattern of change should worsen inequality in the developed countries.



Implications of FPE

- The change in inequality should be the **opposite** for the **developing** (and labor abundant) **countries**.
- The conclusion of worsened inequality in the developed world holds only if:
 - The assumptions of the H-O theory holds.
 - The Stolper-Samuelson theorem is the only force driving changes in inequality.