

PubPol 201  
Module 3: International  
Trade Policy  
Class 2  
The Gains and Losses  
from Trade

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Class 2 Outline

The Gains and Losses from Trade

- Comparative advantage
- Other sources of gain from trade
- Who gains and who loses from trade
  - In a single market
  - In the whole economy
- How strong is the case for trade?

Lecture 2: Gains

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## Comparative Advantage

- Due to David Ricardo (1815)
  - Others (Adam Smith) recognized that the world could gain if production shifted
    - From those who are worse at producing to
    - Those who are better at it.
  - So international trade would be beneficial if, say
    - England was better at producing cloth
    - Portugal was better at producing wine
    - And therefore England exported cloth to Portugal in exchange for its wine.

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## Comparative Advantage

- Ricardo realized that each country did not need an “absolute advantage” in something for trade to be beneficial.
- Even if, say,
  - England were absolutely worse at producing both cloth and wine
  - There would still be gains from trade if England's relative (i.e., percentage) disadvantage were greater in one good (say wine) than the other.

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## Comparative Advantage

- Ricardo's Example

Hours of work necessary to produce 1000 units		
Country	Cloth	Wine
England	100	120
Portugal	90	80

- England needs more labor to produce both goods. So Portugal has absolute advantage in both
- But England needs about
  - About 10% more labor for Cloth
  - About 50% more for labor Wine
- So England has a comparative advantage in cloth

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Hours of work necessary to produce 1000 units		
Country	Cloth	Wine
England	100	120
Portugal	90	80

- Without trade, the countries need the following amounts of labor to produce (and consume) 1000 units each of cloth and wine
  - England:  $100 + 120 = 220$
  - Portugal:  $90 + 80 = 170$
- And with that labor the world as a whole has 2000 units of each good.

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Hours of work necessary to produce 1000 units		
Country	Cloth	Wine
England	100	120
Portugal	90	80

- Now suppose England uses all 220 to produce cloth
  - Since each hour produces 10 units ( $1000/100$ ), it would produce 2200 units of cloth (and no wine).
- And suppose Portugal uses all 170 units to produce wine
  - Since each hour produces 12.5 units ( $1000/80$ ), it would produce 2125 units of wine ( $12.5 \times 170$ ) (and no cloth).
- The world now has more of both cloth and wine than before ( $2200 > 2000$ ;  $2125 > 2000$ ).
- Both countries would benefit if, say, each trades half its output with the other:
  - Each will consume 1100 units of cloth and 1062.5 units of wine

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## Comparative Advantage

- Ricardo's Example
- Shows the potential to gain from trade even if
  - Your trading partner is less productive than you in all activities, or
  - Your trading partner is more productive than you in all activities
- What actually happens depends on details of the example, including
  - All the productivities
  - Country sizes
  - Demands for the goods
- But economists have generalized this example into models that show that
  - The world must gain from trade, and
  - No country will lose from trade

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## Comparative Advantage

- How markets generate trade
  - Wages reflect productivity
  - In Ricardo's example, the wage per hour in England must be lower than in Portugal
  - It is this that makes England's cloth cheaper than Portugal's and makes trade happen.
    - The wage in England only has to be about 10% lower than the wage in Portugal for English cloth to be cheaper than Portuguese cloth
    - At that wage, Portuguese wine is still cheaper than English wine

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## Comparative Advantage

- Why countries often fear trade
  - Low-productivity developing countries fear trade with high-productivity developed countries
    - Fear: How can we compete with the US, whose technology, capital, education, etc. make it far more productive than we are?
    - Answer: You can compete, because your wage is lower.
  - High-wage developed countries fear trade with low-wage developing countries
    - Fear: How can we compete with Mexico, whose wages are so much lower than ours?
    - Answer: Their wages are low because their productivity is low.

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## Other Gains from trade

- Comparative advantage is not the only reason that countries gain from trade
- Other sources of gain from trade
  - Scale economies
  - Greater competition
  - Increased variety
  - Increased productivity

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## Other Gains from trade

- Scale economies
  - In many industries, costs per unit fall as output rises
  - Examples: cars, computer software, pharmaceuticals
    - Assembly line lowers costs but only for producing many cars
    - Upfront cost of writing software, compared to almost zero cost of making copies of it
    - Research cost for new drugs far larger than cost of making them

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## Other Gains from trade

- Scale economies and trade
  - Without trade, a small country produces everything at small scale and high cost
  - By specializing in fewer goods and exporting, cost of each goes down

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## Other Gains from trade

- Imperfect competition
  - With few firms in an industry, firms have market power and charge prices well above cost
  - These high prices reduce demand below what would be justified by their low cost
  - Society suffers lower welfare

Lecture 12: Gains

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## Other Gains from trade

- Imperfect competition and trade
  - Without trade, a small country has few firms in each industry, which therefore use market power to charge high prices
  - With trade, those firms must compete with imports and prices fall closer to costs

Lecture 12: Gains

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## Other Gains from trade

- Variety
  - Buyers benefit when more varieties are available
    - Consumers can choose what they most want
    - Firms buying inputs can get what works best for their particular needs
  - Economic welfare therefore rises with increases in variety of products available

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## Other Gains from trade

- Variety and trade
  - Without trade, a small country cannot provide many choices
  - With trade consumers and firms have the world's varieties to choose from

Lecture 12: Gains

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## Other Gains from trade

- Firm productivity
  - Firms in the same industry differ in their productivity for various reasons
    - Managerial ability
    - Location and availability of inputs
    - Product design
  - More productive firms produce and sell more than less productive firms and make more profit

Lecture 22: Gains

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## Other Gains from trade

- Firm productivity and trade
  - When a country opens to international trade
    - Its most productive firms can expand and export
    - Its least productive firms compete with imports and
      - Reduce output and sales, or
      - Shut down
    - Thus average productivity of the industry rises
  - This means that the country and the world benefit from higher productivity and lower costs

Lecture 22: Gains

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## Discussion Question

- Can you think of any down-sides to any of these?
  - Scale economies
  - Increasing competition
  - Variety
  - Expansion of more productive firms

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## Class 2 Outline

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## Who gains and loses from trade

- Ricardo's example already points to some losers from trade
  - Makers of wine in England
  - Makers of cloth in Portugal
- In the simple model, there is only labor, which ends up earning a higher wage in the other industry
- But in fact those workers must first bear the cost of moving to that other industry

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## Who gains and loses from trade

- In general, in order for there to be trade and gains from trade
  - Some industries must expand, and
  - Others must contract

Lecture 22: Gains

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## Who gains and loses from trade

- Workers and owners in the contracting industries are hurt
  - Especially if they cannot move easily to another industry
  - We call those “specific factors”
- The dislocated workers and owners
  - Do gain from trade as consumers
  - But they lose much more as producers

Lecture 22: Gains

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## Who gains and loses from trade

- Thus costs of trade include
  - Plants, firms, and industries that shrink or close
    - Workers become unemployed
    - Owners lose profits
    - Whole communities can lose if they depended on a few major employers
  - We’ll see this more in Class 4 on the China Shock

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## Benefits and Costs of Trade in a Single Market

- Economists use supply-and-demand analysis to work out the effects of policies
  - Taxes
  - Subsidies
  - Regulations
  - Etc.
- This includes the use of tariffs to reduce trade and tariff reductions to increase trade.
  - We'll just look at moving from no trade to free trade.

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## Benefits and Costs of Trade in a Single Market

- Consider an economy that produces and consumes a good
  - Without trade, the domestic price  $P^D$  equates supply and demand

Lecture 2: Gains

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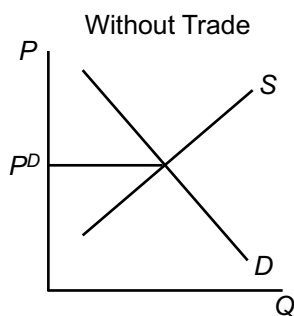
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Lecture 2: Gains

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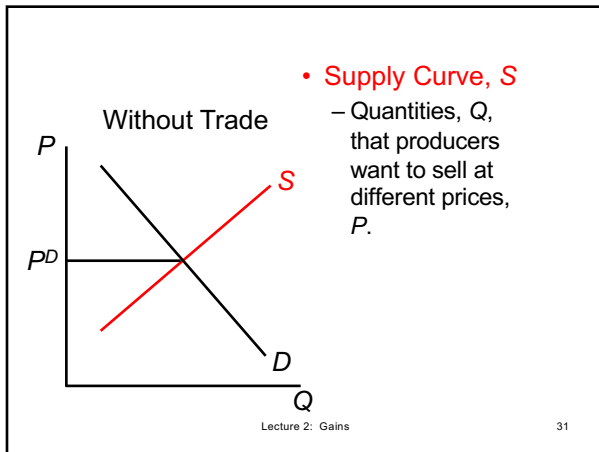
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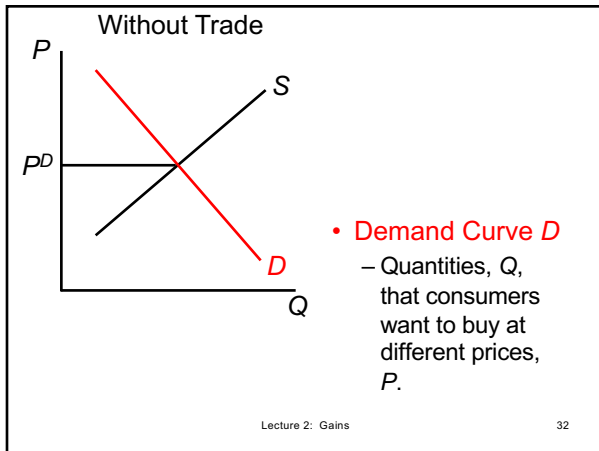
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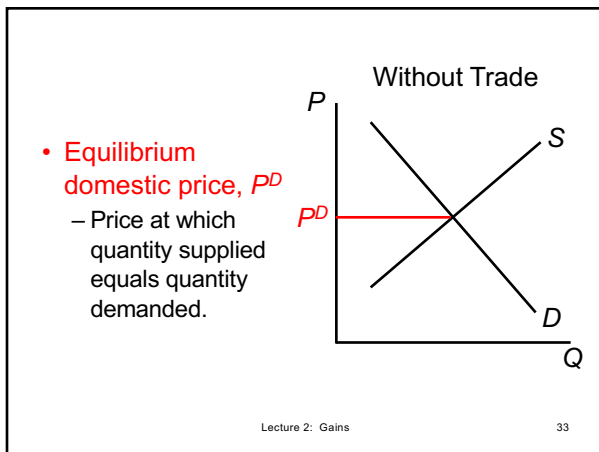
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## Benefits and Costs of Trade in a Single Market

- Consider an economy that produces and consumes a good
  - Without trade, price  $P^D$  equates supply and demand
  - With trade, facing a world price  $P^W$ , its domestic price becomes  $P^W$  and it either exports or imports the good
    - Exports if  $P^W > P^D$
    - Imports if  $P^W < P^D$

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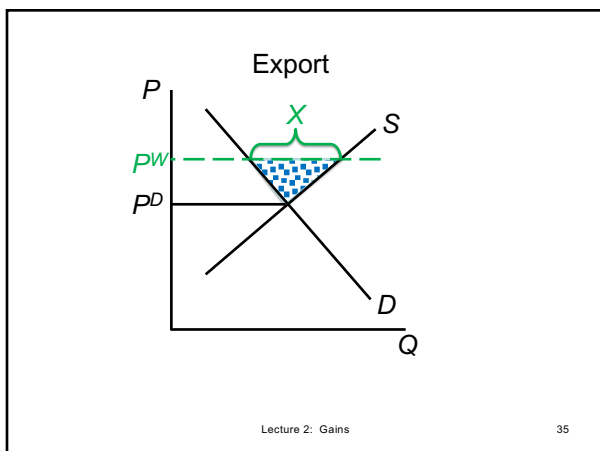
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## Benefits and Costs of Trade in a Single Market

- Who gains and who loses from trade in a market that exports?
  - Since price goes up
    - Sellers gain
    - Buyers lose
  - Sellers gain more than buyers lose, by the amount shown as the shaded triangle
  - (Don't worry about understanding why, unless you've taken Econ 101)

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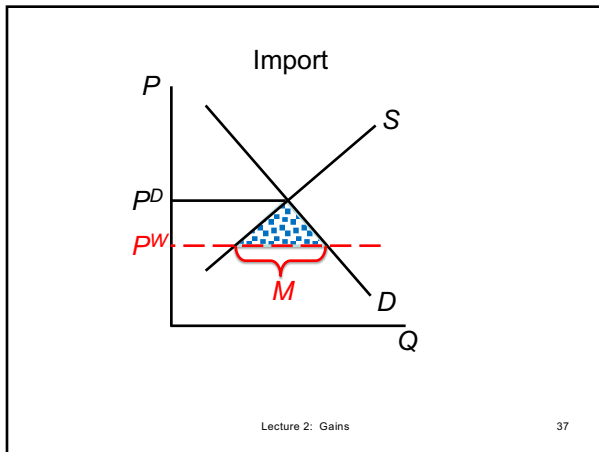
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### Benefits and Costs of Trade in a Single Market

- Who gains and who loses from trade in a market that imports?
  - Since price goes down
    - Sellers lose
    - Buyers gain
  - Buyers gain more than sellers lose, by the amount shown as the shaded triangle
  - (Again don't worry about why)



Lecture 2: Gains

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### Benefits and Costs of Trade in a Single Market

- Note that in both cases
  - Suppliers include not just the owners of the firms, but also
    - Workers in the industry who may change employment and/or wages
    - Suppliers of raw materials and intermediate inputs to the industry, including their owners and workers
  - Demanders may include not just consumers, but also
    - Firms that use the product as an input
    - And their owners and workers

Lecture 2: Gains

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## Benefits and Costs of Trade in a Single Market

- Summary

Effects of opening a single market	Benefits	Costs
If $P^W > P^D$ then export	Suppliers (firms & workers)	Demanders (firms & workers)
If $P^W < P^D$ then import	Demanders (firms & workers)	Suppliers (firms & workers)
Either way →	Benefits are greater than costs	

Lecture 42: Gains

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## Class 2 Outline

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Lecture 2: Gains

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## Who gains and loses from trade

- Given enough time, many displaced workers will find other jobs. But they may not pay as well. (Same for owners.)
- Even workers in expanding industries may suffer lower wages due to competition with workers released from elsewhere.
- In general, trade affects wages of different types of labor and prices of other factors.

Lecture 42: Gains

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## Who gains and loses from trade

- A fundamental “Theorem” of international trade theory says that
  - Abundant factors gain from trade
  - Scarce factors lose from trade
    - (The theorem is called the Stolper-Samuelson Theorem, named for two economists whose paper was published in 1941. Stolper later spent much of his career here at Michigan.)

Lecture 2: Gains

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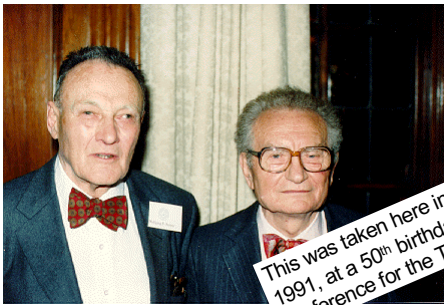
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## Wolfgang Stolper and Paul Samuelson



Lecture 2: Gains

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## Who gains and loses from trade

- The reasons:
  - If there is no trade, scarce factors earn a premium due to their scarcity
  - Trade forces a country's scarce factors to compete, through trade, with their more abundant counterparts abroad
  - Without trade, abundant factors have their earnings reduced by their abundance
  - Trade allows them to produce for the world market where their earnings are higher

Lecture 2: Gains

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## Benefits and Costs of Trade for a Whole Economy

### • Summary

Effects of opening a whole economy	Benefits	Costs
If <u>relative</u> prices differ,	Owners of factors <u>specific</u> in exports	Owners of factors <u>specific</u> in imports
then export <u>and</u> import	Factors <u>intensive</u> in exports	Factors <u>intensive</u> in imports
Always →	<u>Abundant</u> factors	<u>Scarce</u> factors
	Benefits are greater than costs	

Lecture 42: Gains

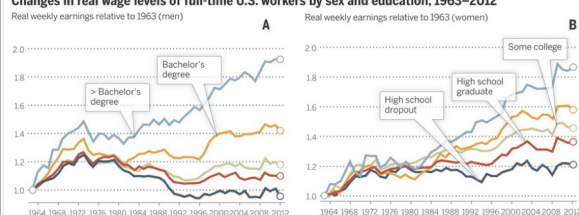
## Who loses from trade

- The Theorem applied to the US:
  - The scarce factor in the US is low-skilled labor
    - Because US has abundance of high-skilled and educated workers, plus capital, land, and others
  - So globalization has tended to lower the relative wage of low-skilled labor in the US

Lecture 42: Gains

Real wages indexed at 1963 by education and gender, 1963–2013 – Autor (2014)<sup>4</sup>

### Changes in real wage levels of full-time U.S. workers by sex and education, 1963–2012



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## Who loses from trade

- The rise in the “skill premium”
  - Specifically, the wage of skilled labor relative to unskilled labor (or the return to education) has risen steadily since about 1980
  - Trade (or globalization) is part of the reason for this.
  - But it is due even more to other causes (See Bernstein)
    - Technology, decline of unions, erosion of minimum wage, etc.

Lecture 4B Gains

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## Discussion Questions

- Why do you think technology has favored skilled workers compared to unskilled workers?
- Do you expect technology to continue that way in the future?

Lecture 5B Gains

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## Class 2 Outline

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## How strong is the case for trade?

- Economists argue that the gains from trade are larger than the losses. Is that enough?
  - Certainly not for those who lose
  - In principle, society could tax the winners, compensate the losers, and make all better off
  - In practice, though we have TAA, we don't do that
  - Bernstein argues for "creating real, substantive, remunerative opportunities for those hurt by trade"
    - Easy to say. Hard to do.

Lecture 2: Gains

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## Discussion Questions

- Should policy makers use policies that hurt people, just because the benefit to others is greater?
- Does it matter (or should it?) who the winners and losers are?

Lecture 2: Gains

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