PubPol 201

Module 3: International Trade Policy

Class 2
The Gains and Losses from Trade

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?

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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.

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.

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

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.

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 (12.5×170) (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

Clicker Question

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

Which country has comparative advantage in cloth?

✓ a) England

b) Portugal

Note that here each has an absolute advantage in a good.

Clicker Question

Hours of work necessary to produce 1000 units		
Country	**Cloth**	**Wine**
England	80	75
Portugal	90	80

Which country has comparative advantage in cloth?

✓ a) England

b) Portugal

Now England had absolute advantage in both. But since 80/90 < 75/80, England has relative advantage in cloth

Clicker Question

Hours of work necessary to produce		
Country	**1 Window**	**1 Car**
US	20	1500
Japan	30	2000

Which country has comparative advantage in cars?

a) US

✓ b) Japan

Here Japan has absolute disadvantage in both, but since 2000/1500 < 30/20, it has comparative advantage in cars

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 (as a whole) must gain from trade, and
  - No country (as a whole) will lose from trade

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

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.

Clicker Question

Hours of work necessary to produce		
Country	**1 Window**	**1 Car**
US	20	1500
Japan	30	2000

Which country must have the lower wage?

a) US

✓ b) Japan

c) Can't tell

If Japan's wage were as high as the US wage, its cars would cost more.

Clicker Question

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

Which country must have the lower wage?

a) England

b) Portugal

✓ c) Can't tell

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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

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

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

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 lower cost
  - Society suffers lower welfare
    - (by which we mean aggregate well-being, but mainly the benefits from consuming)

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

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

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

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

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

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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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

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

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

Who gains and loses from trade

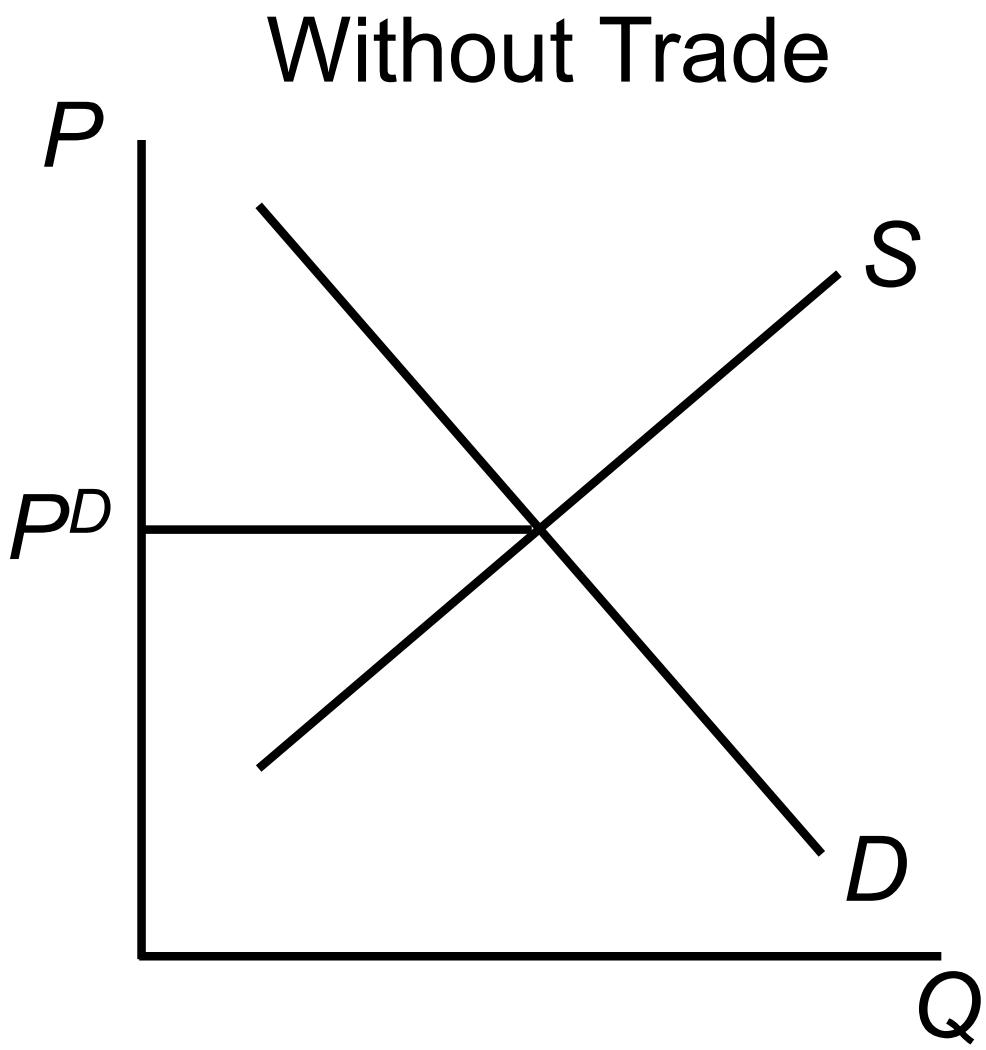
- Thus costs of trade include
  - Plants, firms, and industries that shrink or close
    - Workers become unemployed
    - Owners lose profits
    - Whole communities can lose if they depended on a few major employers
  - We'll see this more in Class 4 on the China Shock

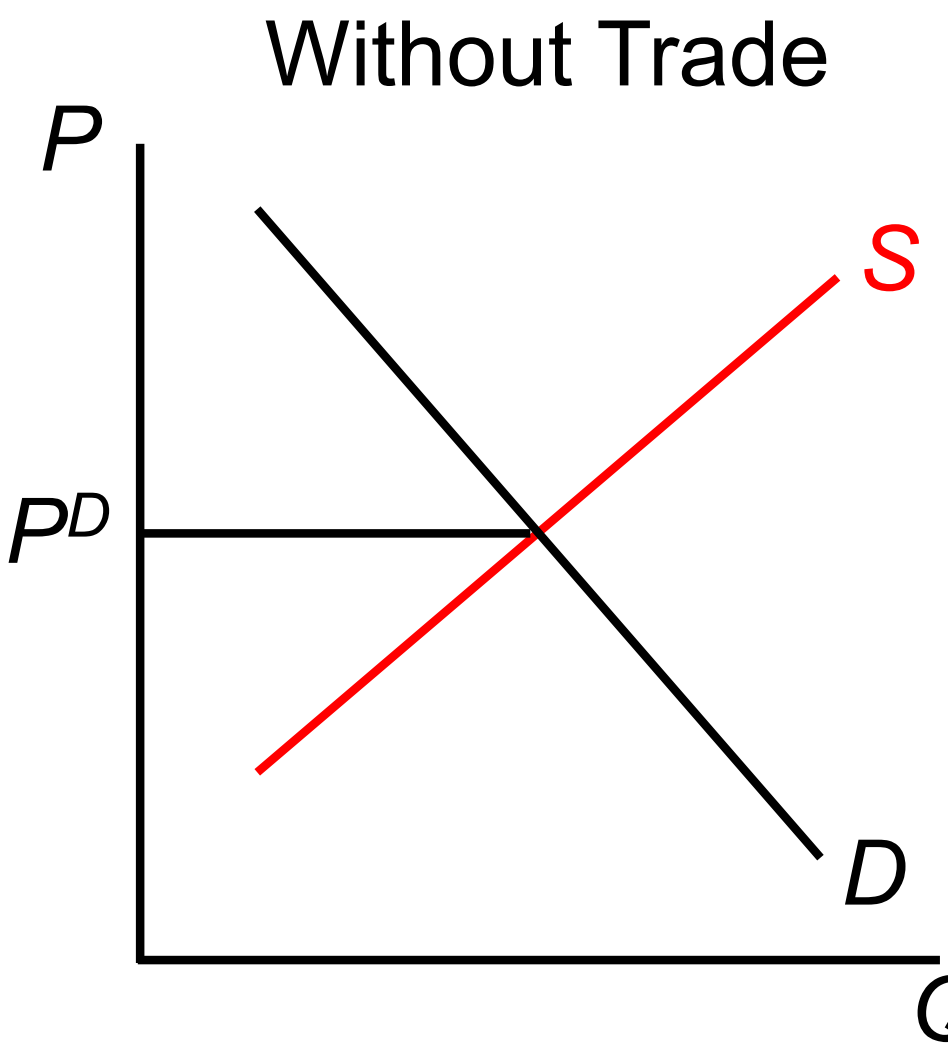
Benefits and Costs of Trade in a Single Market

- 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.

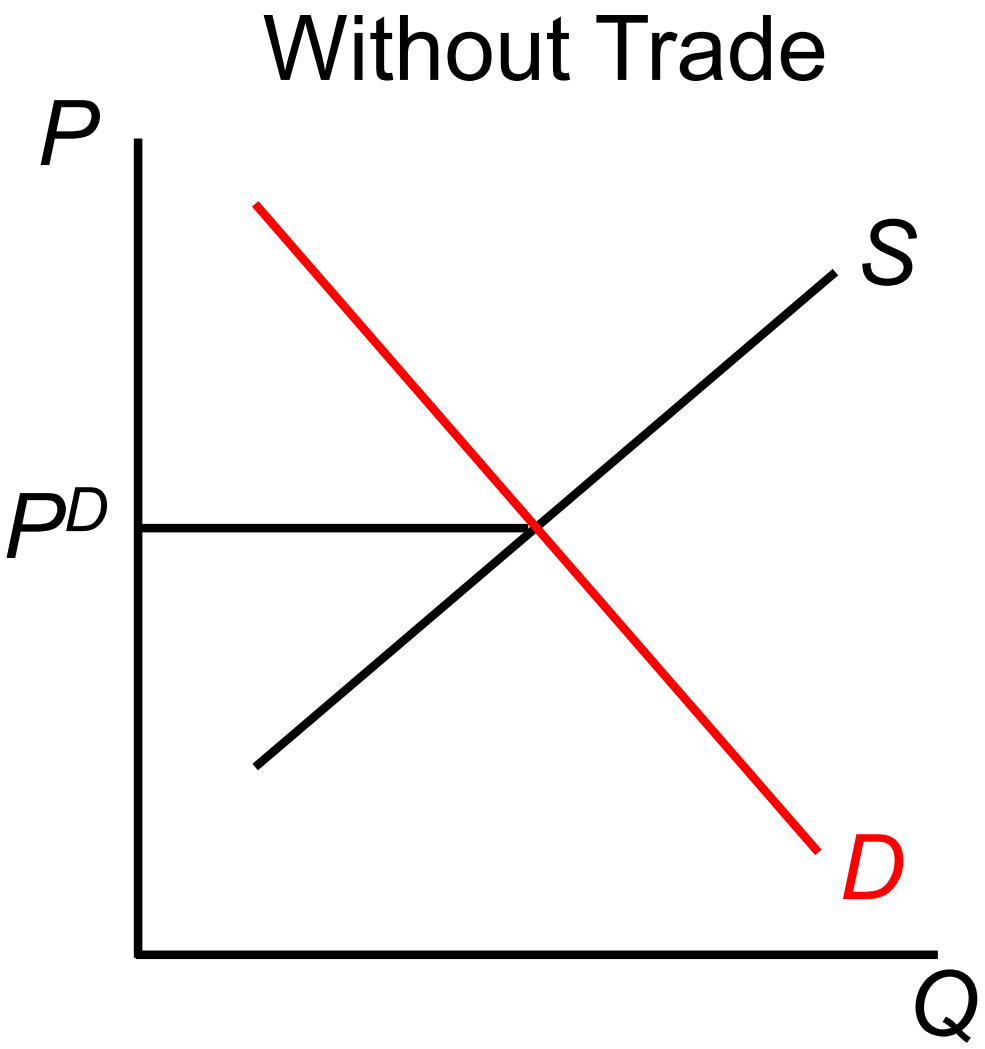
Benefits and Costs of Trade in a Single Market

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


Without Trade
P
S
P^D
D
Q

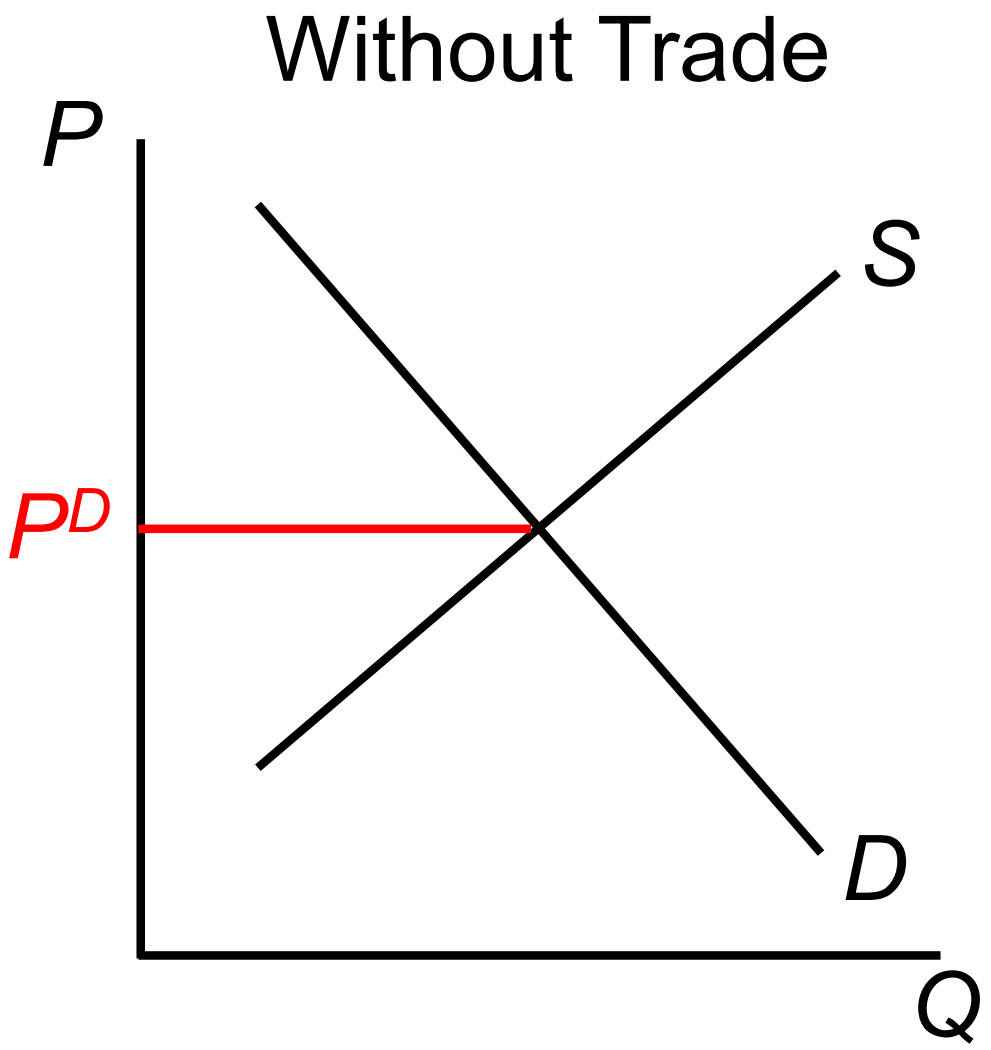


- Supply Curve, *S*
  - Quantities, *Q*, that producers want to sell at different prices, *P*.
  - At higher prices, they supply more



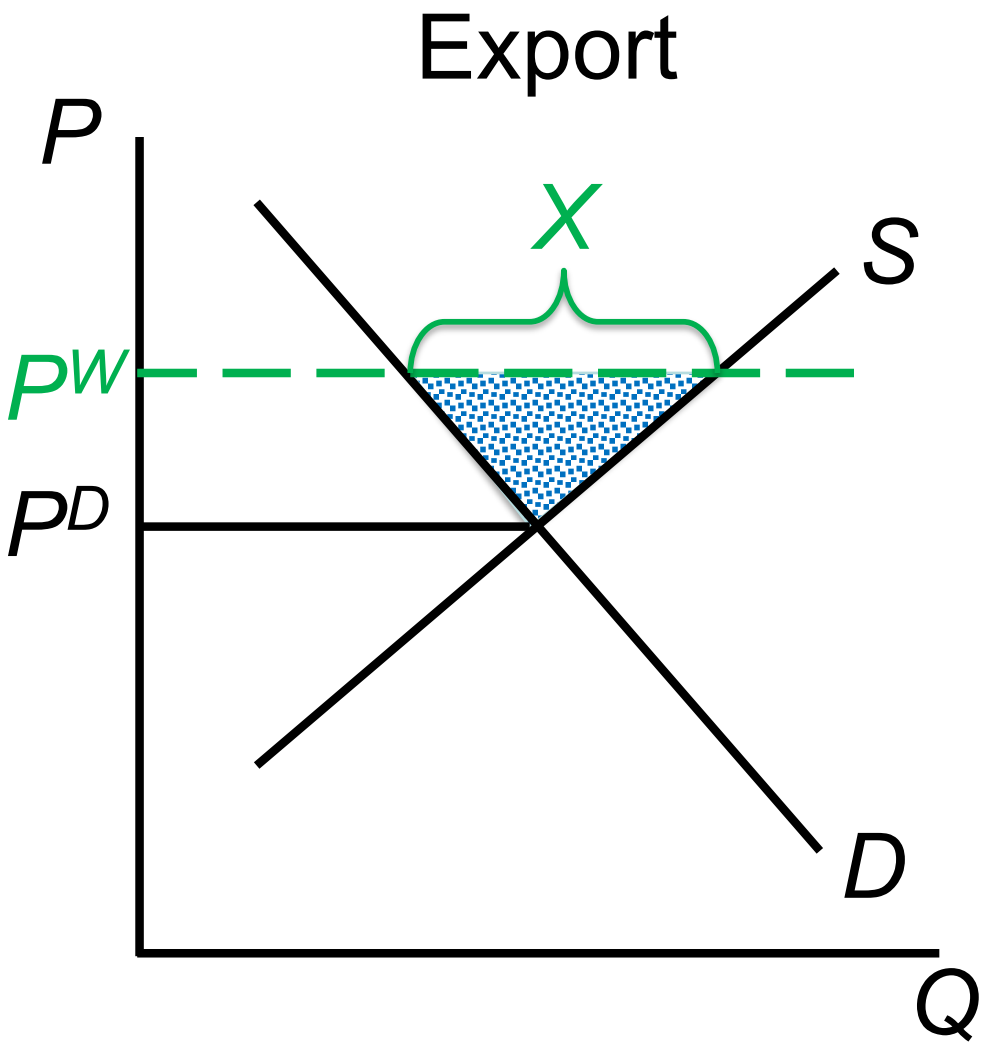
- Demand Curve *D*
  - Quantities, *Q*, that consumers want to buy at different prices, *P*.
  - At higher prices, they demand less

- Equilibrium domestic price, P^D
  - Price at which quantity supplied equals quantity demanded.



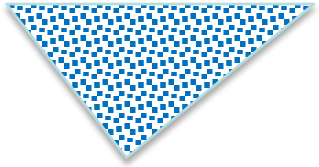
Benefits and Costs of Trade in a Single Market

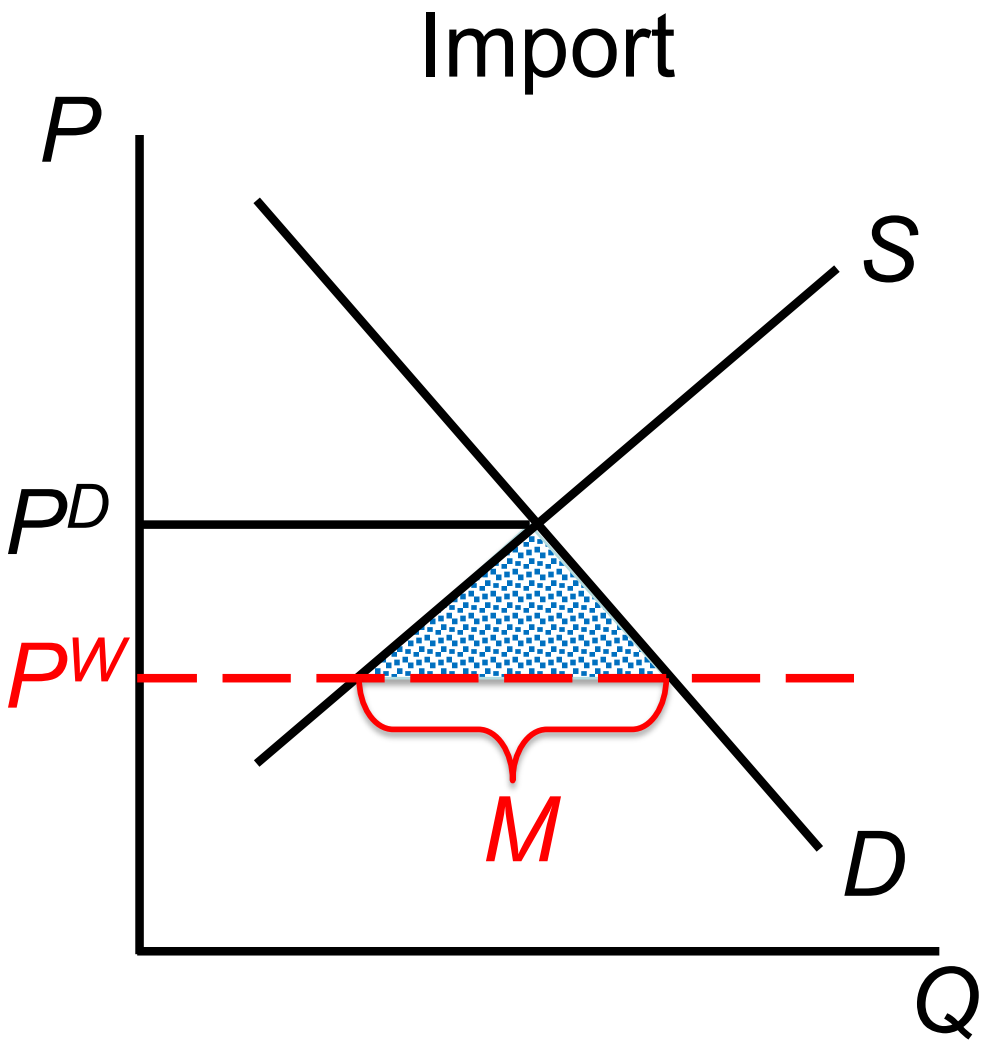
- Consider an economy that produces and consumes a good
  - Without trade, price P^D equates supply and demand
  - With trade, facing a world price P^W, its domestic price becomes P^W and it either exports or imports the good
    - Exports if $P^W > P^D$
    - Imports if $P^W < P^D$


Export
P
X
S
P^W
P^D
D
Q

Benefits and Costs of Trade in a Single Market

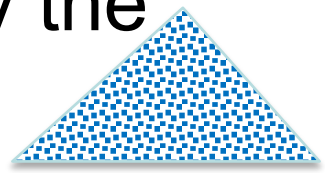
- Who gains and who loses from trade in a market that exports?
  - Since price goes up
    - Sellers gain
    - Buyers lose
  - Sellers gain more than buyers lose, by the amount shown as the shaded triangle
  - (Don't worry about understanding why, unless you've taken Econ 101)




Import
P
S
P^D
P^W
M
D
Q

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)

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

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		

Clicker Question

NAFTA reduced Mexico's tariffs on imported corn (maize). Who lost from this?

a) US farmers and Mexican farmers

b) US farmers and Mexican consumers

✓ c) US consumers and Mexican farmers

d) US consumers and Mexican consumers

Because trade caused the price of corn to rise in the US and fall in Mexico.

Clicker Question

NAFTA reduced Mexico's tariffs on imported corn (maize). Who gained from this?

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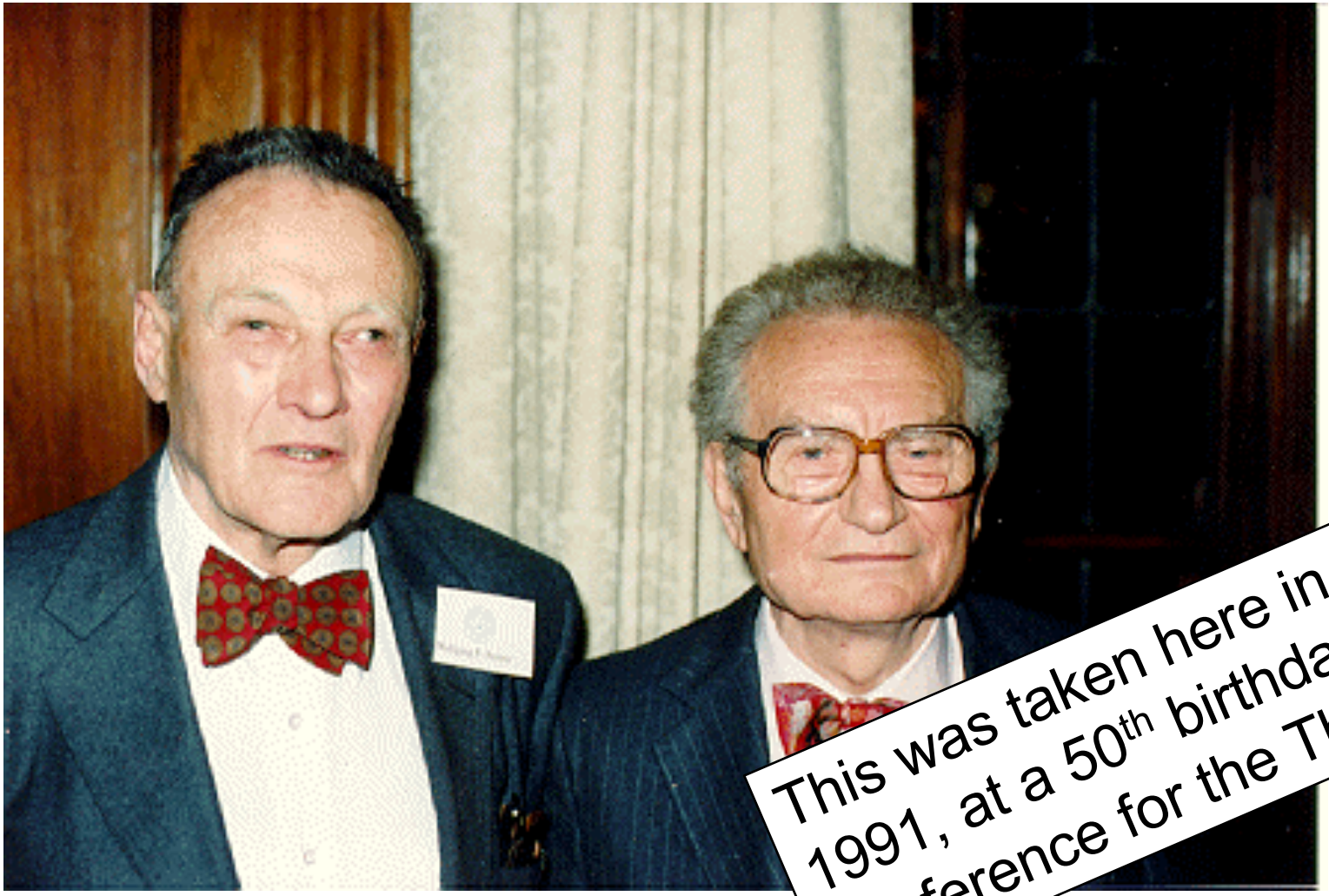
Who gains and loses from trade

- 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.

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.)

Wolfgang Stolper and Paul Samuelson



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

Benefits and Costs of Trade for a Whole Economy

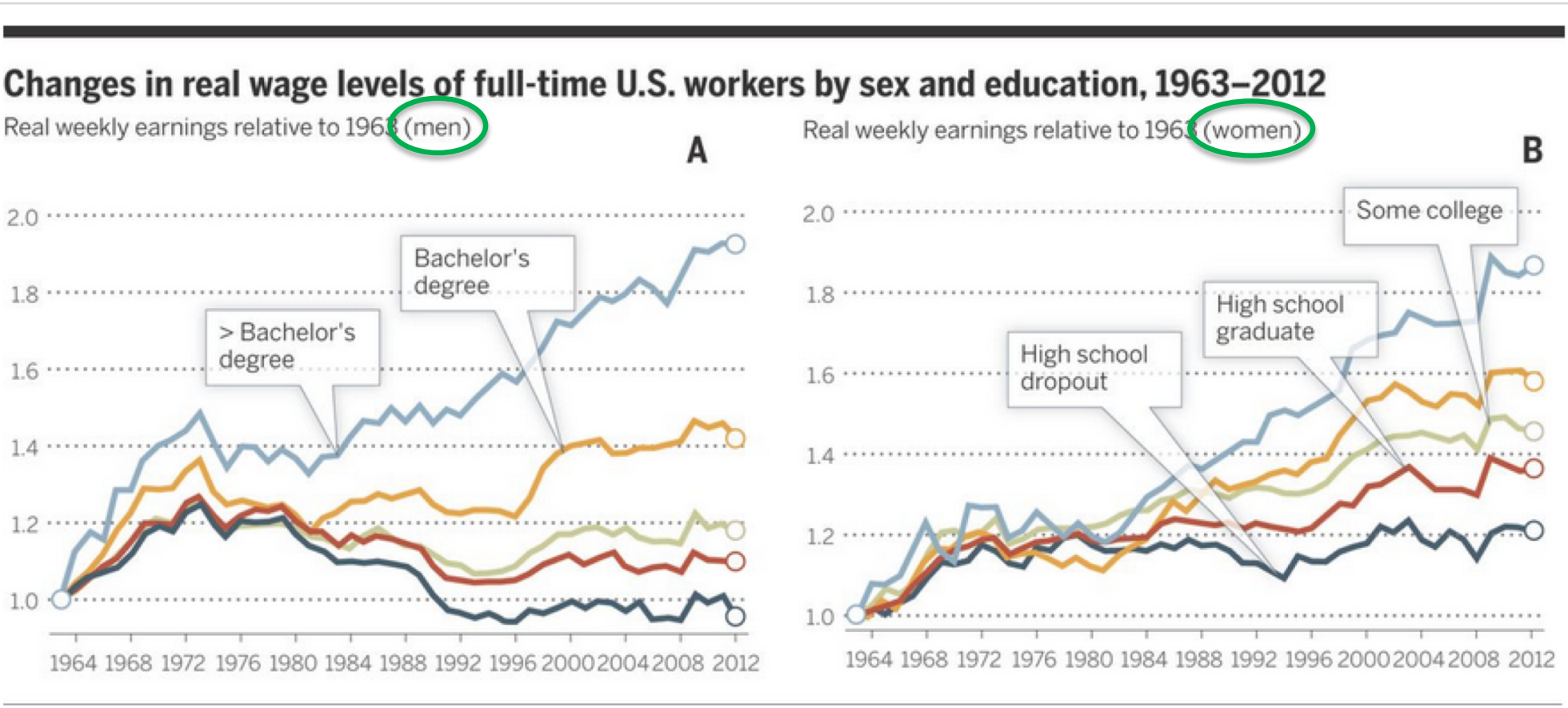
- Summary

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

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

Real wages indexed at 1963 by education and gender, 1963-2013 – Autor (2014)[4]



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.

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?

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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.

Clicker Question

Who in Mexico do you think gains most from trade, according to the Stolper-Samuelson Theorem?

a) Land owners

✓ b) Workers with little education

c) College graduates

d) Owners of Mexican manufacturers

Compared to the US, Mexico has relatively most of unskilled workers.

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?