

## Principles of Economics

### Chapter 9:

# Application to International Trade



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## In This Chapter

- ▶ What determines how much of a good a country will **import** or **export**?
- ▶ **Who benefits** from trade? Who damages from trade? Do the gains outweigh the losses?
- ▶ If policymakers **restrict imports**, who benefits? Who is harmed? Do the gains from restricting imports outweigh the losses?
- ▶ What are some **common arguments for restricting trade**? Do they have merit?

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## Think About the Clothes You are Wearing Today

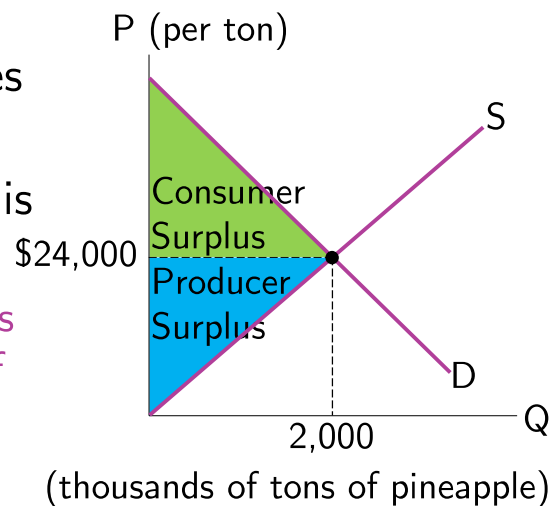
1. Where did you get them?
2. Who worked to produce them?
3. What country were they made in?
4. What would your life be like if you had to provide all your own clothing?

## The Determinants of Trade

- ▶ The equilibrium without trade
  - ▶ Only domestic buyers and sellers
  - ▶ Equilibrium price and quantity
    - ▶ Determined on the domestic market
  - ▶ Total benefits from trade = total surplus
    - ▶ Consumer surplus
    - ▶ Producer surplus

## Example 1: Daiwan, Pineapples, No Trade

- ▶ Daiwan produces  $Q = 2,000$  thousands of tons of pineapples per year
- ▶ Price of pineapples in Daiwan is  $P = \text{NT}\$24,000$  per ton
- ▶ Without trade, Daiwan consumes  $Q = 2,000$  (thousands of tons of pineapples per year)



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## Ask The Experts

### Tariffs and Trade Deals

- ▶ “Past major trade deals have benefited most Americans.”
  - ▶ Do you Agree or Disagree?
  - ▶ Do Economists Agree or Disagree?

Source: IGM Economic Experts Panel, March 12, 2018, November 11, 2014, and March 27, 2013.

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Do you "Agree" or "Disagree"?  
 "Past major trade deals have benefited most Americans."

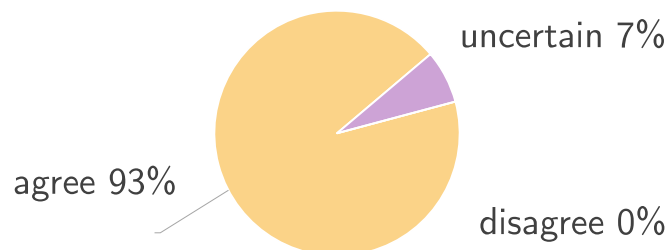
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## Ask The Experts

### Tariffs and Trade Deals

▶ "Past major trade deals have benefited most Americans."

What do economists say?



Source: IGM Economic Experts Panel, March 12, 2018, November 11, 2014, and March 27, 2013.

## World Price and Comparative Advantage

- ▶  $P_W$  = the world price of a good, the price that prevails in world markets
- ▶  $P_D$  = domestic price without trade
- ▶ If  $P_D < P_W$ ,
  - ▶ Domestic country has comparative advantage, country **exports** the good
- ▶ If  $P_D > P_W$ ,
  - ▶ Domestic country does not have comparative advantage, country **imports** the good

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## The Small Economy Assumption

- ▶ A small economy (like Taiwan) is a price taker in world markets:
  - ▶ Not always true—especially big countries like U.S. and China
  - ▶ Its actions have no effect on  $P_W$
- ▶ When a small economy engages in free trade,  $P_W$  is the only relevant price:
  - ▶ No seller would accept  $P < P_W$  (can sell at  $P_W$  in world mkt)
  - ▶ No buyer would pay  $P > P_W$  (can buy at  $P_W$  in world mkt)

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## Example 2: Daiwan Exports Pineapples

Without Trade,

$$P_D = \text{NT\$}24,000 \quad Q = 2,000$$

$$P_W = \text{NT\$}27,000$$

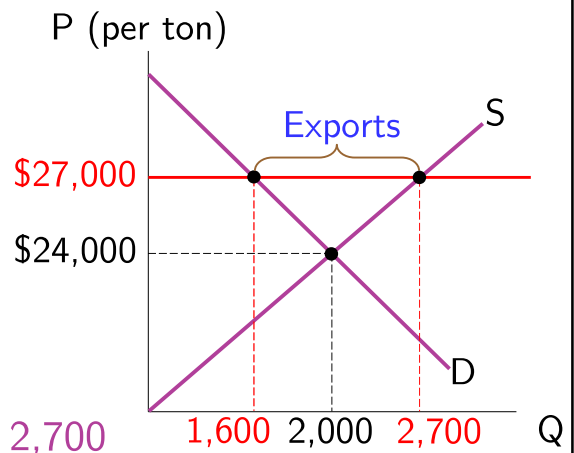
Under Free Trade,

▶ Domestic consumers demand

$$Q_D = 1,600$$

▶ Domestic producers supply  $Q_S = 2,700$

$$\text{Exports} = 2,700 - 1,600 = 1,100 \quad (\text{thousands of tons of pineapple})$$



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## Example 2: Welfare Analysis, Daiwan

Without Trade,

$$CS = A + B$$

$$PS = C$$

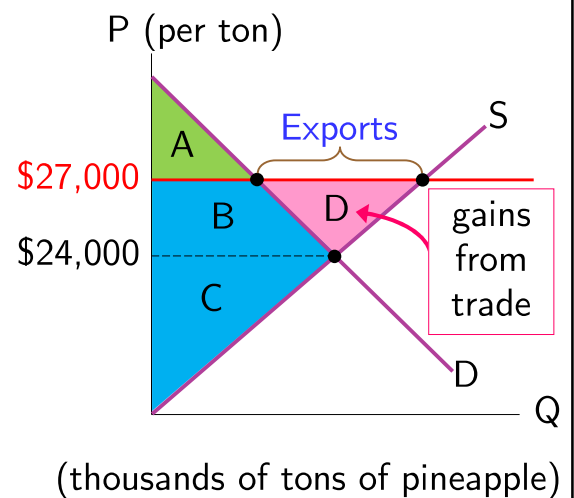
$$\text{Total Surplus} = A + B + C$$

With Trade,

$$CS = A$$

$$PS = B + C + D$$

$$\text{Total Surplus} = A + B + C + D$$



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## Active Learning 1: International Trade

When Romania opened itself to international trade, the price of corn in Romania almost doubled.

- A. Does Romania has comparative advantage in the production of corn?
- B. Is Romania an exporter or an importer of corn?
- C. Romanian consumers of corn will be better off or worse off? How about the producers?
- D. Are there any gains from international trade?

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When Romania opened itself to international trade, the price of corn in Romania almost doubled.

Does Romania has comparative advantage in the production of corn?

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When Romania opened itself to international trade, the price of corn in Romania almost doubled.  
Is Romania an exporter or an importer of corn?

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## Active Learning 1: International Trade

When Romania opened itself to international trade, the price of corn in Romania almost doubled.

- A. Does Romania has comparative advantage in the production of corn?
  - ▶ Since domestic price increased, world price of corn was higher than domestic price, so Romania has comparative advantage in the corn production.
- B. Is Romania an exporter or an importer of corn?
  - ▶ Romania becomes an exporter of corn





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When Romania opened itself to international trade, the price of corn in Romania almost doubled. Are there any gains from international trade?

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## Active Learning 1: International Trade

When Romania opened itself to international trade, the price of corn in Romania almost doubled.

- C. Romanian consumers of corn will be better off or worse off? How about the producers?
- ▶ Consumers pay higher price/buy less, **CS** declines (worse off!)
  - ▶ Producers produce more corn/sell at higher price/export, so **PS** increases (better off!)
- D. Are there any gains from international trade?
- ▶ The gains to the Romanian producers outweigh the losses to Romanian consumers, so overall the economy is better off

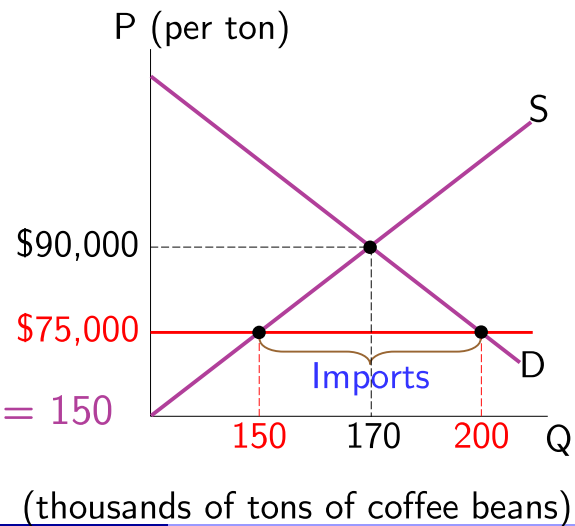
### Example 3: Daiwan Imports Coffee Beans

#### Without Trade,

- ▶  $P_D = \text{NT\$}90,000$ ,  $Q = 170$
- ▶  $P_W = \text{NT\$}75,000$

#### Under Free Trade,

- ▶ Domestic consumers demand  $Q_D = 200$
- ▶ Domestic producers supply  $Q_S = 150$
- ▶ Imports = 50



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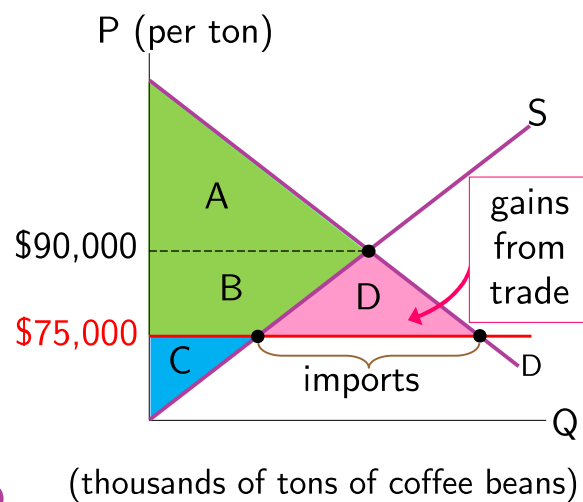
### Example 3: Welfare Analysis, Daiwan

#### Without Trade,

- $CS = A$
- $PS = B + C$
- Total Surplus =  $A + B + C$

#### With Trade,

- $CS = A + B + D$
- $PS = C$
- Total Surplus =  $A + B + C + D$



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## Summary: The Welfare Effects of Trade

Whether a good is imported or exported, trade creates winners and losers. **But the gains exceed the losses.**

	$P_D < P_W$	$P_D > P_W$
Direction of Trade	Exports	Imports
Consumer Surplus	Falls	Rises
Producer Surplus	Rises	Falls
Total Surplus	Rises	Rises

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## Active Learning 2: International Trade, Again

When Romania opened itself to international trade, the price of chocolate in Romania declined.

- A. Does Romania has comparative advantage in the production of chocolate?
- B. Is Romania an exporter or an importer of chocolate?
- C. Romanian consumers will be better off or worse off? How about the producers?
- D. Are there any gains from international trade?

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When Romania opened itself to international trade, the price of chocolate in Romania declined.  
Does Romania has comparative advantage in the production of chocolate?

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When Romania opened itself to international trade, the price of chocolate in Romania declined.  
Is Romania an exporter or an importer of chocolate?

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## Active Learning 2: International Trade, Again

When Romania opened itself to international trade, the price of chocolate in Romania declined.

- A. Does Romania has comparative advantage in the production of chocolate?
  - ▶ Since domestic price dropped, world price of chocolate was smaller than domestic price, so Romania does NOT have comparative advantage in the production of chocolate.
- B. Is Romania an exporter or an importer of chocolate?
  - ▶ Romania becomes an importer of chocolate

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When Romania opened itself to international trade, the price of chocolate in Romania declined. Romanian consumers will be better off or worse off? How about the producers?

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When Romania opened itself to international trade, the price of chocolate in Romania declined.  
Are there any gains from international trade?

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## Active Learning 2: International Trade, Again

When Romania opened itself to international trade, the price of chocolate in Romania declined.

- C. Romanian consumers will be better off or worse off? How about the producers?
- ▶ Consumers pay lower price/buy more, **CS** increase (better off!)
  - ▶ Producers produce less chocolate/sell at lower price/export, so **PS** decreases (worse off!)
- D. Are there any gains from international trade?
- ▶ The gains to the Romanian consumers outweigh the losses to Romanian producers, so overall the economy is better off

## Ask The Experts

### Tariffs and Trade Deals

▶ “Imposing new U.S. tariffs on steel and aluminum will improve Americans’ welfare.”

▶ Do you Agree or Disagree?

▶ Do Economists Agree or Disagree?

Source: IGM Economic Experts Panel, March 12, 2018, November 11, 2014, and March 27, 2013.

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Do you "Agree" or "Disagree"?  
“Imposing new U.S. tariffs on steel and aluminum will improve Americans’ welfare.”

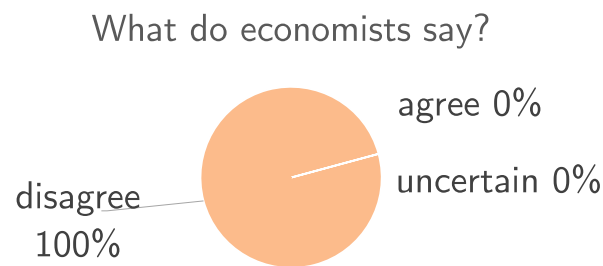
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## Ask The Experts

### Tariffs and Trade Deals

- ▶ “Imposing new U.S. tariffs on steel and aluminum will improve Americans’ welfare.”



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## The Effects of a Tariff

- ▶ Tariff
  - ▶ Tax on goods produced abroad and sold domestically
  - ▶ Tax on imported goods
- ▶ Free Trade
  - ▶ Domestic price = World price
- ▶ Tariff on Imports
  - ▶ Raises domestic price above world price
    - ▶ By the amount of the tariff

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### Example 4: Daiwan Imposes a Tariff on Imports

Free Trade,

$$P_W = \text{NT\$}75,000$$

$$Q_D = 200, Q_S = 150$$

$$\text{Imports} = 50$$

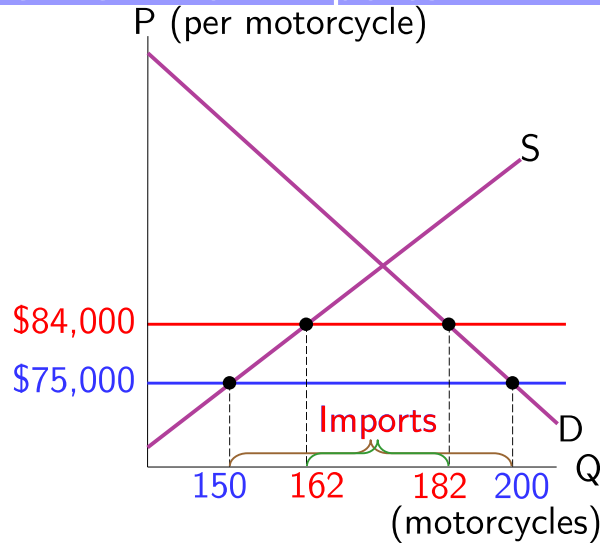
Tariff = \\$9,000/motorcycle

$$P = \text{NT\$}84,000$$

$$Q_D = 182$$

$$Q_S = 162$$

$$\text{Imports} = 20$$



### Example 4: Welfare Analysis, Tariffs

Free Trade,  $P = \text{NT\$}75,000$

$$CS = A + B + C + D + E + F$$

$$PS = G$$

$$\text{Total Surplus} = A + B + \dots + G$$

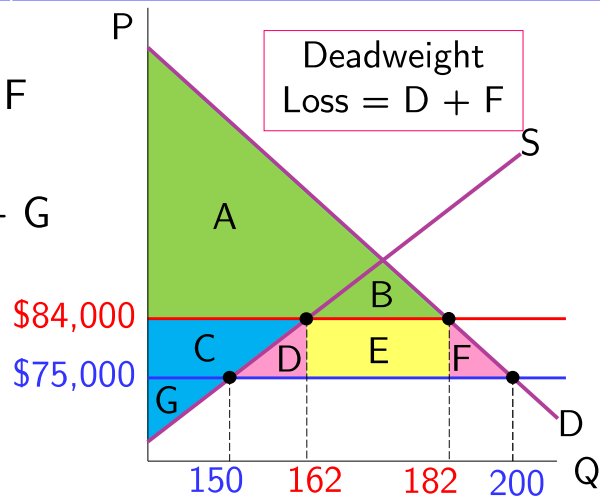
With Tariff,  $P = \text{NT\$}84,000$

$$CS = A + B,$$

$$PS = C + G$$

$$\text{Tax Revenue} = E$$

$$\text{Total Surplus} = A + B + C + E + G$$



## Import Quotas: Another Way to Restrict Trade

- ▶ Import Quota
  - ▶ Quantitative limit on imports of a good
- ▶ Mostly has the same effects as a tariff:
  - ▶ Raises price, reduces quantity of imports
  - ▶ Reduces buyers' welfare
  - ▶ Increases sellers' welfare
- ▶ A tariff raises revenue for the government
- ▶ An import quota generates surplus for those who obtain the permits to import

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- ▶ Other benefits of international trade
  1. Increases **variety** of goods for consumers
  2. Allows firms to take advantage of **economies of scale**
  3. Makes markets more **competitive**
  4. Makes the economy more **productive**
  5. Facilitates the **spread** of technology

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## Arguments For Restricting Trade

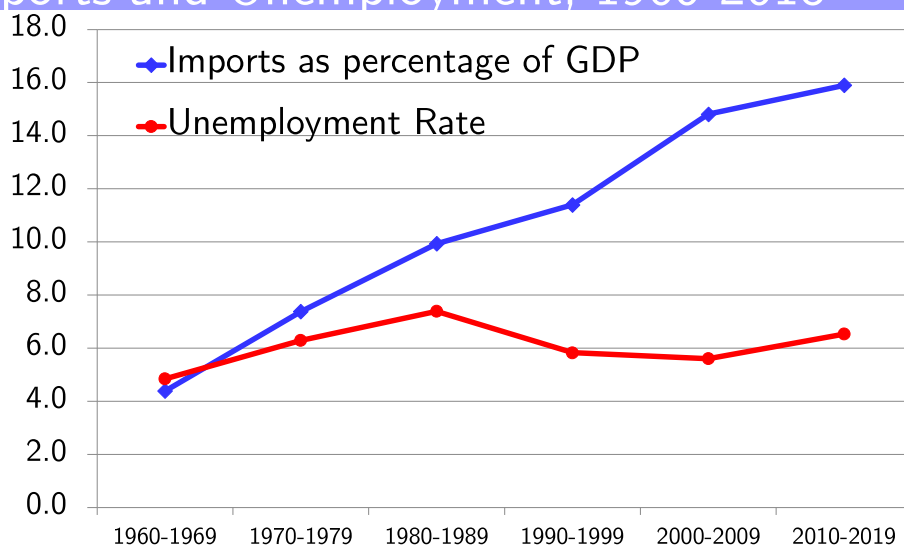
- ▶ The Jobs Argument
  - ▶ “Trade with other countries destroys domestic jobs”
  - ▶ But,
  - ▶ Free trade **creates** jobs at the same time that it destroys them
  - ▶ Total unemployment does not rise as imports rise, because job losses from imports are offset by job gains in export industries....

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## U.S. Imports and Unemployment, 1960-2018



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## Arguments For Restricting Trade

- ▶ The National-Security Argument
  - ▶ “The industry is vital for national security”
  - ▶ But,
- ▶ Protecting key industries may be appropriate when there are **legitimate** concerns over national security
- ▶ Companies have an incentive to exaggerate their role in national defense to obtain protection from foreign competition

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## Arguments For Restricting Trade

- ▶ The Infant-Industry Argument
  - ▶ “New industries need temporary trade restriction to help them get started.
  - ▶ Older industries need temporary protection to help them adjust to new conditions”
  - ▶ But,
- ▶ Difficult to implement in practice
- ▶ The temporary policy is hard to remove
  - ▶ Protection is not necessary for an infant industry to grow

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## Arguments For Restricting Trade

- ▶ The Unfair-Competition Argument
  - ▶ “Free trade is desirable only if all countries play by the same rules”
  - ▶ But,
- ▶ Importing from a country that subsidizes production:
  - ▶ Increase in total surplus for us (the importing country)!
  - ▶ Imports of low-cost products subsidized by the other country's taxpayers
  - ▶ Gains to our consumers will exceed losses to our producers

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## Arguments For Restricting Trade

- ▶ The Protection-as-a-Bargaining-Chip Argument
  - ▶ “Trade restrictions can be useful when we bargain with our trading partners.
  - ▶ The threat of a trade restriction can help remove a trade restriction already imposed by a foreign government”
  - ▶ But,
- ▶ This threat may not work
  - ▶ Unless you are Donald Trump?!

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## Ask The Experts

### Tariffs and Trade Deals

- ▶ “Refusing to liberalize trade unless partner countries adopt new labor or environmental rules is a bad policy, because even if the new standards would reduce distortions on some dimensions, such a policy involves threatening to maintain large distortions in the form of restricted trade.”

▶ Do you Agree or Disagree?

▶ Do Economists Agree or Disagree?

Source: IGM Economic Experts Panel, March 12, 2018, November 11, 2014, and March 27, 2013.

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Do you "Agree" or "Disagree"?

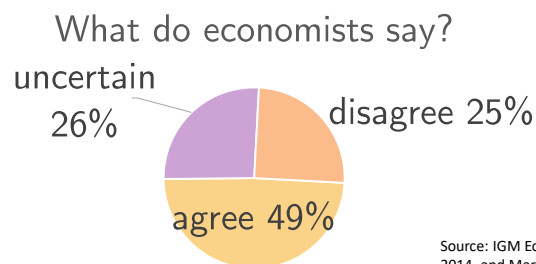
“Refusing to liberalize trade unless partner countries adopt new labor or environmental rules is a bad policy, because even if the new standards would reduce distortions on some dimensions, such a policy involves threatening to maintain large distortions in the form of restricted trade.”

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## Ask The Experts

### Tariffs and Trade Deals

- ▶ “Refusing to liberalize trade unless partner countries adopt new labor or environmental rules is a bad policy, because even if the new standards would reduce distortions on some dimensions, such a policy involves threatening to maintain large distortions in the form of restricted trade.”



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## Trade Agreements and the WTO

- ▶ World Trade Organization, WTO
- ▶ Unilateral approach to achieve free trade
  - ▶ Remove its trade restrictions on its own
  - ▶ Great Britain, 19<sup>th</sup> century
  - ▶ Chile and South Korea, recent years
- ▶ Multilateral approach to free trade
  - ▶ Reduce its trade restrictions together with other countries
  - ▶ NAFTA, GATT
  - ▶ **NAFTA now replaced by USMCA!!**

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## Trade Agreements and the WTO

- ▶ North American Free Trade Agreement (NAFTA)
  - ▶ 1993, lowered trade barriers among the United States, Mexico, and Canada
- ▶ United States-Mexico-Canada Agreement (USMCA)
  - ▶ 2020, replaced NAFTA
- ▶ General Agreement on Tariffs and Trade (GATT)
  - ▶ Continuing series of negotiations among many of the world's countries with the goal of promoting free trade

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## Trade Agreements and the WTO

- ▶ GATT
  - ▶ United States helped to found GATT
    - ▶ After World War II
    - ▶ In response to the high tariffs imposed during the Great Depression
  - ▶ Successfully reduced the average tariff among member countries from 40% to 5%
  - ▶ Enforced by the WTO
  - ▶ August 2018: 164 countries; more than 97% of world trade

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## Trade Agreements and the WTO

- ▶ Advantages of the multilateral approach
  1. Potential to result in freer trade than unilateral approach
    - ▶ Reduce trade restrictions abroad and at home
  2. Political advantage
    - ▶ Producers are fewer and better organized than consumers
    - ▶ Greater political influence if neighboring countries also reduce trade barrier

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## Think-Pair-Share

### You are Watching the Referendum Debate. One Side

- ▶ Says, "I'm for free trade, but it must be safe trade.
  - ▶ If foreign producers have lax environmental/nuclear regulations, or feed their pigs with harmful chemicals,
  - ▶ we should retaliate with import restrictions on their goods to show them that we won't be played for fools!"
- A. If a foreign country has lax environmental/nuclear regulations or grows their pigs with Ractopamine (萊克多巴胺) and then exports the products to us, who gains and who loses in our country?

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If a foreign country has lax environmental/nuclear regulations or grows their pigs with Ractopamine (萊克多巴胺) and then exports the products to us, who gains and who loses in our country?

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## Think-Pair-Share

(Cont.) You are Watching the Referendum Debate...

- B. If a foreign country subsidizes the production of a good exported to Taiwan, who bears the burden of their mistaken policy?
- C. What happens to our overall economic well-being if we restrict trade with a country that subsidizes its export industries? Explain.

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If a foreign country subsidizes the production of a good exported to Taiwan, who bears the burden of their mistaken policy?

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What happens to our overall economic well-being if we restrict trade with a country that subsidizes its export industries? Explain.

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## Chapter In a Nutshell

- ▶ The effects of free trade can be determined by comparing the domestic price before trade with the world price.
  - ▶ A **low** domestic price indicates that the country has a comparative advantage in producing the good and that the country will become an **exporter**.
  - ▶ A **high** domestic price indicates that the rest of the world has a comparative advantage in producing the good and that the country will become an **importer**.

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## Chapter In A Nutshell

- ▶ When a country allows trade
  - ▶ If it becomes an **exporter**: **producers** of the good are better off, and consumers of the good are worse off.
  - ▶ If it becomes an **importer**: **consumers** are better off, and producers are worse off.
  - ▶ The gains from trade exceed the losses.
- ▶ A **tariff** reduces the gains from trade.
  - ▶ Domestic producers are better off and the government raises revenue, but the losses to consumers exceed these gains.

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## Chapter In A Nutshell

- ▶ There are various arguments for restricting trade: protecting jobs, defending national security, helping infant industries, preventing unfair competition, and responding to foreign trade restrictions.
- ▶ Although some of these arguments have merit in some cases, most economists believe that free trade is usually the better policy.

## Chapter 9: International Trade

- ▶ Imports benefit consumers
- ▶ Exports benefit producers
- ▶ Trade benefit the entire economy
  - ▶ Should Taiwan sign BTA with the US,
  - ▶ ECFA with China, FTA with other countries,
  - ▶ Or even join CPTPP?
- ▶ Homework:
  - ▶ Mankiw, Ch.9, Problem 3, 4, 7-10

## Ch. 9: Challenge Questions/ex-Midterm

- ▶ 2007 - Q5
  - ▶ 2009 - B
  - ▶ 2012 - A7-A9 (True/False Q9)
  - ▶ 2014 - C-2
  - ▶ 2015 - C
  - ▶ 2018 - B1-B5
  - ▶ 2019 - A3, C5-C8
  - ▶ 2020 - C5-C9
  - ▶ 2021 - A1, A3, B3, D1, D3
- 2008 - (Multi-Choice Q9-Q11, Q15)  
2010 - (True/False Q2, Q9)  
2013 - III (True/False Q3)

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Audience Q&amp;A Session

## Principles of Economics

Ch.9:

# The End