

Why Do Domestic Prices Rise with Tariffs?

Student Handout

Part One- Tariffs and Trade-Offs: How Blocking Imports Raises Prices

- Read FEE.org's [Why Do Domestic Prices Rise with Tariffs?](#) by economist Alex Tabarrok.
 - Then, respond to the questions that follow to check your understanding of the key economic concepts discussed.
1. Why do tariffs cause domestic prices to rise, even in perfectly competitive industries, according to the article?
 - a. Domestic producers gain monopoly power
 - b. Domestic producers raise prices to increase profits
 - c. Expanding domestic production requires higher-cost resources, raising opportunity costs
 - d. Foreign producers respond with higher prices in retaliation
 2. What is the main economic loss from tariffs, as illustrated by the sugar example?
 - a. Increased government tax revenue
 - b. Decreased consumer demand for sugar
 - c. Overproduction of low-quality goods
 - d. The value of resources wasted by shifting production away from more efficient uses
 3. Which economic concept best explains why trade increases a country's wealth?
 - a. Trade allows countries to obtain goods by giving up fewer resources than producing them themselves
 - b. Trade enables countries to specialize in their absolute advantage
 - c. Trade makes domestic production unnecessary
 - d. Trade eliminates the need for currency
 4. In your own words, explain why producing more wine in California—rather than importing it—leads to a higher opportunity cost. Include an example from the article (such as olive oil, cheese, or land use) to support your explanation.

5. The article states that tariffs “do not increase domestic production; they shift domestic production from one industry to another.” In your own words, explain what this means. Why is this distinction important for understanding the true economic impact of tariffs?

ARTICLE



4 minutes

Part Two- Resource Allocation in Econovia

You and your team are entrepreneurs in the country of Econovia. Your goal is to maximize revenue—and ultimately profit—by efficiently allocating land and labor to produce a combination of goods: **wine**, **cheese**, and **olive oil**.

You will complete two rounds of decision-making in Phase 1 and Phase 2.

What Your Team Receives: Each team can allocate **6 LAND** cards & **6 LABOR** cards to produce.

PRODUCT	LAND NEEDED	LABOR NEEDED	REVENUE
Domestic Wine 🍷	2	2	4
Imported Wine 🇹🇼 🍷	0	0	2
Cheese 🧀	1	2	3
Olive Oil	1	1	4

Phase 1: Free Trade

- You may import up to 2 units of wine with a benefit of 2 revenue points each. *Since you are importing the wine it costs 1 revenue point per unit, but does not require land or labor.*
- Your citizens demand 2 units of wine per phase.** You *must* meet this consumer demand through domestic production, imports, or both to avoid an 8 revenue point penalty.
- Use your land and labor to produce any mix of domestic wine, cheese, and olive oil.
- Your goal is to maximize total revenue by using resources where they bring the most value.

End of Phase 1: Scoring Instructions

- Record units produced or imported for each good.
- Multiply units by the net revenue per unit to calculate total net revenue per product.
 - Subtract 1 revenue point for each unit of imported wine.
- Add the Total Net Revenue for each product and record the total at the bottom of the table.
 - Subtract 8 from revenue if wine demand is not met.

PHASE 1 SCORING CHART

	UNITS PRODUCED OR IMPORTED	NET REVENUE PER UNIT	TOTAL NET REVENUE (Multiply units column by net revenue per unit)
Domestic Wine 🍷		4	
Imported Wine 🇹🇼 🍷		2 (Subtract 1 revenue point per unit of imported wine only)	0 or 1 or 2 (circle one)
Cheese 🧀		3	
Olive Oil		4	
WINE PENALTY			0 or -8 (circle one)
TOTAL			

Phase 2: Tariffs Introduced

In this round, the government imposes a 400% tariff on imported wine. This means:

- Imported wine now costs 5 revenue points per unit (up from 1 point).
- Domestic production rules remain the same (Domestic wine production requires 2 land + 2 labor for 4 revenue points).
- The wine demand rule still applies. Your team must supply at least 2 units of wine each round to avoid an 8-point penalty for not meeting consumer demand.

What Should You Do?: Reassess your strategy.

Should you import wine at a higher cost? Or shift more resources to domestic wine production, even if it means giving up olive oil or cheese?

🔥 **Reminder:** Domestic wine production comes at a cost. Every acre used to make wine is one not used for cheese, olive oil, or other goods. Tariffs force difficult trade-offs.

End of Phase 2: Scoring Instructions

1. Record units produced or imported for each good.
2. Multiply units by the net revenue per unit to calculate total net revenue per product.
 - Subtract 5 revenue points for each unit of imported wine.
3. Add the Total Net Revenue for each product and record the total at the bottom of the table.
 - Subtract 8 from revenue if wine demand is not met.

PHASE 2 SCORING CHART

	UNITS PRODUCED OR IMPORTED	NET REVENUE PER UNIT	TOTAL REVENUE
Domestic Wine 🍷		4	
Imported Wine 🗼🍷		2 <i>(Subtract 5 revenue points per unit of imported wine only)</i>	0 or -3 or -6 <i>(circle one)</i>
Cheese 🧀		3	
Olive Oil		4	
WINE PENALTY			0 or -8 <i>(circle one)</i>
TOTAL			

Reflection Questions:

1. **Did your team choose to import wine in Phase 1 (Free Trade)?** If so, explain why you preferred importing wine over producing it domestically.

2. **In Phase 2 (Tariffs Introduced), did your team still import wine?** Why or why not? How did the 400% tariff affect your decision-making?

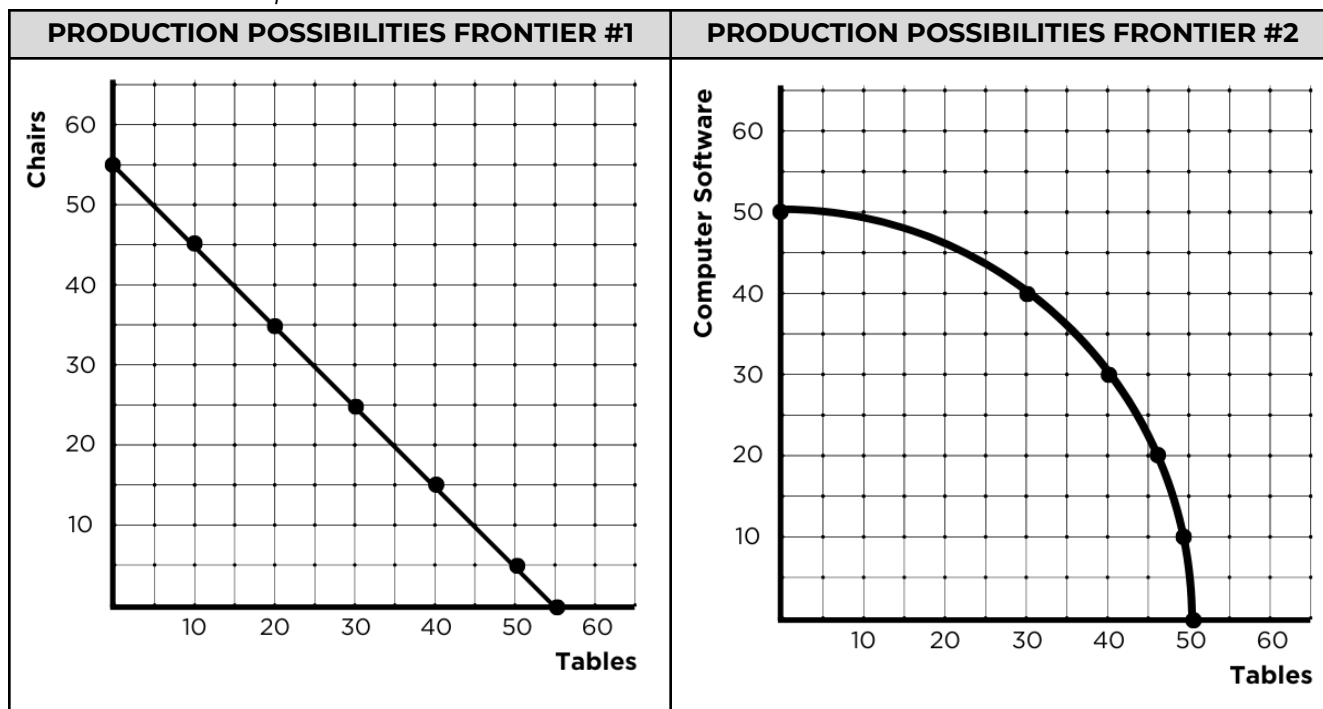
3. **What was the opportunity cost of producing domestic wine in Phase 2?** Which product(s) did you have to reduce or eliminate in order to meet the wine demand domestically?

4. **In which phase—Phase 1 (Free Trade) or Phase 2 (With Tariffs)—was your team better off?** Use your total revenue scores to support your answer, and explain how trade or tariffs impacted your outcome.

5. **How does this simulation reflect real-world trade-offs when governments impose tariffs?** Consider how higher import costs might reduce spending elsewhere in the economy or affect job creation in other industries.

Part Three- Drawing the Line: What We Give Up to Get More

- Analyze the concept of opportunity cost using production possibilities frontiers graphs 1 & 2.
- Answer the questions that follow.

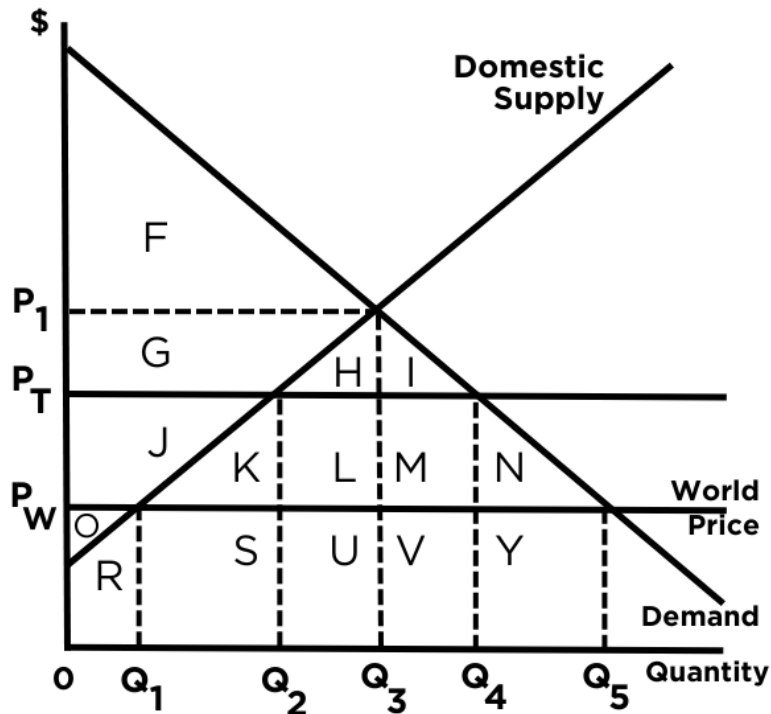


- Suppose an economy can produce only chairs and tables, as shown in PPF #1.
If the economy is currently producing 55 chairs and 0 tables, but decides to increase table production to 10 tables, how many chairs must it give up to make that shift? *(Use the production possibilities curve to determine the opportunity cost of this decision.)*
 - 5
 - 10
 - 15
 - 20
 - 40
- Suppose an economy produces only chairs and tables, as shown in PPF #1.
If the economy is currently producing 15 chairs and 40 tables, but decides to increase production to 50 tables, how many chairs must it give up to make this change? *(Refer to the production possibilities curve to determine the opportunity cost in terms of chairs.)*
 - 5
 - 10
 - 15
 - 20
 - 40
- What does a straight line PPF tell us about the country's production of these two goods?
 - Producing more tables increases the opportunity cost of producing chairs
 - The country has an absolute advantage in table production
 - Resources are equally well-suited to making both tables and chairs
 - The country is experiencing increasing marginal returns

4. Suppose an economy produces only computer software and tables, as shown in PPF #2. If it is currently producing 50 units of computer software and 0 tables, but chooses to increase table production to 30 units, how many units of computer software must be given up to make this change?
- a. 5
 - b. 10
 - c. 15
 - d. 20
 - e. 30
5. Suppose an economy produces only computer software and tables, as shown in PPF #2. If the country is currently producing 40 tables, but decides to increase production to 50 tables, how many units of computer software must it give up to make this shift?
- a. 5
 - b. 10
 - c. 15
 - d. 20
 - e. 30
6. According to PPF #2, the country gives up only about 6 units of computer software when increasing table production from 0 to 25 tables, but loses around 44 units of computer software when increasing from 25 to 50 tables.
- Why does producing additional tables result in a much greater loss of software output as production expands? *Explain your answer using the concept of increasing opportunity cost.*

Part Four- How Free Trade and Tariffs Impact Markets

Instructions: Use the supply and demand diagram to answer the multiple-choice and short-response questions that follow, analyzing how free trade and tariffs affect prices, quantities, consumer and producer surplus, and overall economic efficiency—including who benefits, who is harmed, and where resources are lost.



- What is the market price and quantity in a world without trade?
 - P_1 & Q_3
 - P_w & Q_1
 - P_w & Q_5
 - P_T & Q_4
 - P_T & Q_2
- Which letter(s) represents the area of consumer surplus in a world without trade?
 - G J O
 - F G H I
 - F
 - O
 - K L M N
- Suppose free trade is allowed and P_w represents the world price. What letter(s) represent the additional consumer surplus gained?
 - G H I
 - G J O
 - L M
 - G H I J K L M N
 - H I

4. What might consumers do with that additional consumer surplus gained due to free trade?

5. Suppose the government decides to impose a tariff on imports of this good. P_T represents the world price plus the tariff. What letter(s) were consumer surplus in a free trade situation, but are no longer consumer surplus due to the tariff?
- G H I
 - O R S U V Y
 - K N
 - G
 - J K L M N
6. What letter(s) represents surplus that is now tariff revenue collected by the government and politics will determine what happens to that surplus?
- J
 - L M
 - K L M N
 - L M U V
 - F G H I
7. Which letter(s) represents lost efficiency due to the tariff because some transactions no longer occur at the new price with a tariff and transactions that still occur, but are domestic purchases at higher prices rather than purchases on a world market. *Economists call this deadweight loss.*
- K N
 - J K L M N
 - O
 - N Y
 - I M V N Y
8. Which letter(s) represents the area of producer surplus in a world without trade?
- G J O
 - F G H I
 - F
 - O
 - K L M N
9. Suppose free trade is allowed and P_w represents the world price. Which letter(s) represents surplus that was formerly captured by producers that now becomes consumer surplus?
- G H I
 - G J
 - H I K L M N
 - F
 - O

10. Suppose the government decides to impose a tariff on imports of this good. P_T represents the world price plus the tariff. What letter(s) represent consumer surplus in a free trade situation that becomes producer surplus after a tariff is implemented?

- a. J
- b. O
- c. J K L M N
- d. F G H I
- e. I M N V Y

11. Who is helped economically or financially by tariffs? Explain why.

12. Who is hurt economically or financially by tariffs? Explain why.

TEACHER GUIDE

Why Do Domestic Prices Rise with Tariffs?

Overview: In this section, students read an [article](#) by economist Alex Tabarrok titled *Why Do Domestic Prices Rise with Tariffs?* from FEE.org. The article introduces students to the concept of opportunity cost and explains how tariffs raise domestic prices by redirecting scarce resources into less efficient uses.

KEY CONCEPTS: Scarcity, Opportunity cost, Specialization & trade, Production possibilities curve, Consumer and Producer surplus, Markets & prices, Role of prices

Standard 1: Scarcity – The article explains that resources like land and labor are limited, and tariffs force a reallocation of these scarce resources from higher-value uses (like olive oil or cheese) to less efficient production, such as domestic wine.

Standard 2: Opportunity Cost – The article emphasizes that producing more domestic wine comes at the cost of giving up other valuable goods, illustrating the trade-offs involved in reallocating resources due to tariffs.

Standard 5: Trade – The lesson highlights how trade allows countries to obtain goods by using fewer resources, and how tariffs reverse this benefit by shifting production to higher-cost domestic alternatives.

Standard 16: Role of Government and Market Failure – The article critiques tariffs as a government policy that distorts market outcomes and reduces overall economic efficiency, leading to wasted resources and lower total wealth.

Teacher Instructions – Part One: Tariffs and Trade-Offs

Suggested Time: 15–20 minutes

- Distribute or [link](#) the article to students. Consider reading it aloud or assigning it as pre-class homework.
- Encourage students to annotate or highlight key ideas, such as the role of opportunity cost and resource reallocation.
- After reading, students should complete the accompanying multiple-choice and short-response questions independently or in small groups.

Suggested Answers- Part One: Tariffs and Trade-Offs

1. Why do tariffs cause domestic prices to rise, even in perfectly competitive industries, according to the article?
 - a. Domestic producers gain monopoly power
 - b. Domestic producers raise prices to increase profits
 - c. Expanding domestic production requires higher-cost resources, raising opportunity costs**
 - d. Foreign producers respond with higher prices in retaliation

2. What is the main economic loss from tariffs, as illustrated by the sugar example?
 - a. Increased government tax revenue
 - b. Decreased consumer demand for sugar
 - c. Overproduction of low-quality goods
 - d. The value of resources wasted by shifting production away from more efficient uses**
3. Which economic concept best explains why trade increases a country's wealth?
 - a. Trade allows countries to obtain goods by giving up fewer resources than producing them themselves**
 - b. Trade enables countries to specialize in their absolute advantage
 - c. Trade makes domestic production unnecessary
 - d. Trade eliminates the need for currency
4. In your own words, explain why producing more wine in California—rather than importing it—leads to a higher opportunity cost. Include an example from the article (such as olive oil, cheese, or land use) to support your explanation.

Suggested Answer: Producing more wine in California instead of importing it leads to a higher opportunity cost because it requires land and labor that could be used to produce other valuable goods. As producers expand wine production, they must use land that is less ideal for vineyards or land that could have been used for other profitable activities—like growing olives for olive oil or producing artisanal cheese. The opportunity cost is the value of these goods that are no longer being produced because the resources were shifted to wine.

- *Emphasize the definition of opportunity cost as the next-best alternative forgone.*
- *Reinforce that resources like land are scarce and have competing uses.*
- *Highlight the real-world trade-offs Tabarrok describes—especially how increased wine production displaces other economic activity.*

5. The article states that tariffs “do not increase domestic production; they shift domestic production from one industry to another.” In your own words, explain what this means. Why is this distinction important for understanding the true economic impact of tariffs?

Suggested Answer: This means that tariffs don't lead to more total production—they just move resources like land and labor from one area of the economy to another. For example, instead of using land to produce olive oil or cheese, producers now use it to make more wine. The total output doesn't increase; it just changes form. This is important because it shows that tariffs don't make the economy more productive—they simply shift activity, often toward less efficient uses, leading to a loss in overall wealth.

- *Help students distinguish between reallocation of resources and expansion of production.*
 - *Clarify that this reallocation can reduce economic efficiency when resources are pulled away from higher-value uses.*
 - *Reinforce that understanding this shift is key to evaluating the hidden costs of protectionist policies.*
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Teacher Instructions – Part Two: Resource Allocation in Econovia

Overview:

In this simulation, students act as entrepreneurs in the fictional country of Econovia. They must allocate limited resources—**6 land cards** and **6 labor cards**—to produce domestic goods or import wine. Their goal is to **maximize total revenue** while meeting the required **consumer demand for 2 units of wine per round**. The simulation is completed in **two phases**:

- **Phase 1 (Free Trade):** Wine can be imported at a low cost.
- **Phase 2 (Tariffs Introduced):** A high tariff raises the cost of importing wine, forcing students to rethink production decisions.

Suggested Time: 30–35 minutes total (15 minutes per phase + debrief)

Before Beginning:

- Organize students into small groups or pairs.
- Distribute **6 LAND** and **6 LABOR** cards from the “[Appendix A. Part Two Simulation Cards](#)” to each team (use paper slips, playing cards, or labeled tokens).
- Provide each group with a [copy of the Part Two student handout](#) in order for them to calculate their score on the scoring tables for **both phases**.

Phase 1 – Free Trade:

- Explain that teams may **import up to 2 units of wine** at a **net gain of 1 point each** (2 revenue per unit minus 1 cost).
- Emphasize the **wine demand rule**: every team must provide at least 2 units of wine—through imports, domestic production, or both—or face an **8-point penalty**.
- Instruct students to allocate their land and labor to produce a mix of wine, cheese, and olive oil, aiming to **maximize total revenue**.

PRODUCT	LAND NEEDED	LABOR NEEDED	REVENUE
Domestic Wine 🍷	2	2	4
Imported Wine 🚢🍷	0	0	2
Cheese 🧀	1	2	3
Olive Oil	1	1	4

- Guide students to calculate their revenue:
 - Tally units produced/imported × net revenue per unit.
 - Subtract costs of imported wine (1 point per unit).
 - Apply a penalty if wine demand isn't met.
 - Record totals in the **Phase 1 Scoring Chart**.

Phase 2 – Tariffs Introduced:

Before students begin Phase 2, pause to explain the scenario shift:

- Inform students that the government has now imposed a 400% tariff on imported wine, raising the cost per imported unit to 5 revenue points.
- Emphasize that while imported wine still earns 2 revenue points per unit, the net result is a loss of 3 revenue points per imported unit.

- Reiterate that the wine demand rule remains in effect: every team must provide at least 2 units of wine (through imports or domestic production) to avoid an 8-point penalty. Announce the change: imported wine now costs 5 revenue points per unit due to a 400% tariff.

Student Instructions to Emphasize:

- Reevaluate the strategy: Does it make sense to import wine at a higher cost? Should you shift land and labor to domestic wine production, even if it means producing less cheese or olive oil?
- Remind students of the trade-offs: Producing wine domestically requires land and labor that could have been used more profitably for other goods. Tariffs force teams to make less efficient choices, sacrificing potential gains in olive oil or cheese production.

Scoring Instructions for Phase 2:

- Record the units produced or imported for each good.
- Multiply by the net revenue per unit to find the total net revenue for each product.
- For imported wine, subtract 5 revenue points per unit as the cost of the tariff.
- Add up the total net revenue across all goods.
- Subtract 8 points if the team fails to meet the 2-unit wine demand.
- Have students record their final Phase 2 revenue score.

Reflection Questions:

1. **Did your team choose to import wine in Phase 1 (Free Trade)?** If so, explain why you preferred importing wine over producing it domestically.

Suggested Answer: (Student answers will vary) Yes, we chose to import wine in Phase 1 because it was cheaper and didn't require us to use any land or labor. That allowed us to use all of our limited resources to produce cheese and olive oil, which had higher revenue values. Importing wine helped us meet consumer demand while maximizing our total revenue.

- *Highlight the efficiency of importing goods when foreign suppliers offer a lower opportunity cost.*
- *Reinforce the idea that students acted as rational producers by allocating scarce resources (land and labor) to higher-value domestic goods.*
- *Emphasize how trade allows economies to specialize and increase overall wealth by leveraging comparative advantage.*

2. **In Phase 2 (Tariffs Introduced), did your team still import wine?** Why or why not? How did the 400% tariff affect your decision-making?

Suggested Answer: (Student answers will vary) No, we chose not to import wine in Phase 2 because the 400% tariff made it too expensive. Instead of gaining revenue, we would have lost 3 points for each imported unit. The high cost forced us to use land and labor to produce wine domestically, even though that meant giving up production of other goods like olive oil or cheese. The tariff changed our strategy by making importing less efficient and more costly than using our own resources.

- *Point out how tariffs distort decision-making by discouraging efficient trade and forcing reliance on more costly domestic production.*

- *Emphasize the role of relative cost and net benefit in determining optimal choices under changing conditions.*
- *Invite students to consider how this mirrors real-world trade-offs businesses face under protectionist policies.*

3. **What was the opportunity cost of producing domestic wine in Phase 2?** Which product(s) did you have to reduce or eliminate in order to meet the wine demand domestically?

Suggested Answer: (Student answers will vary) The opportunity cost of producing domestic wine in Phase 2 was giving up the ability to produce other goods that used the same land and labor. Since domestic wine requires 2 land and 2 labor per unit, we had to reduce our production of olive oil and cheese to meet the wine demand. These products had higher or similar revenue values, so choosing wine meant losing out on more profitable options.

- *Reinforce the definition of opportunity cost as the value of the next-best alternative given up.*
- *Guide students to identify which combinations of goods they could no longer produce because resources were redirected to wine.*
- *Emphasize how tariffs forced this reallocation, leading to less efficient outcomes and lower overall revenue for many teams.*

4. **In which phase—Phase 1 (Free Trade) or Phase 2 (With Tariffs)—was your team better off?** Use your total revenue scores to support your answer, and explain how trade or tariffs impacted your outcome.

Suggested Answer: (Student answers will vary) Our team was better off in Phase 1 (Free Trade) because we were able to import wine at a low cost and use all our land and labor to produce higher-revenue goods like olive oil and cheese. This gave us a higher total revenue compared to Phase 2. In Phase 2, the tariff made importing wine too expensive, so we had to shift resources to domestic wine production. That reduced our ability to produce more profitable goods, and our total revenue was lower as a result.

- *Encourage students to compare their Phase 1 and Phase 2 totals to support their reasoning with evidence.*
- *Highlight how free trade increases efficiency by allowing resources to flow to their most valuable uses.*
- *Emphasize how tariffs introduce economic trade-offs, reduce specialization, and often lead to lower overall wealth, even when domestic production increases.*

5. **How does this simulation reflect real-world trade-offs when governments impose tariffs?** Consider how higher import costs might reduce spending elsewhere in the economy or affect job creation in other industries.

Suggested Answer: (Student answers will vary) This simulation shows that when governments impose tariffs, businesses and consumers face higher costs for imported goods. In the real world, that means people might have to spend more on basic items like

food or cars, which reduces how much they can spend on other things like entertainment or dining out. For businesses, using more expensive domestic resources may mean producing less efficiently, which can reduce profits and slow job growth in other industries. Tariffs help some producers but hurt others and can shrink overall economic activity.

- *Use this prompt to connect classroom learning to broader economic effects: fewer consumer dollars spent elsewhere = fewer jobs in other sectors.*
- *Emphasize that tariffs create visible benefits (e.g., more domestic wine production) but hidden costs (e.g., fewer resources for other goods/services).*
- *Encourage discussion around winners and losers from protectionist trade policy and the importance of considering long-term economic efficiency over short-term protection in order to allow the price system to effectively and efficiently allocate resources within the decentralized global economy.*

Teacher Instructions – Part Three: Drawing the Line: What We Give Up to Get More

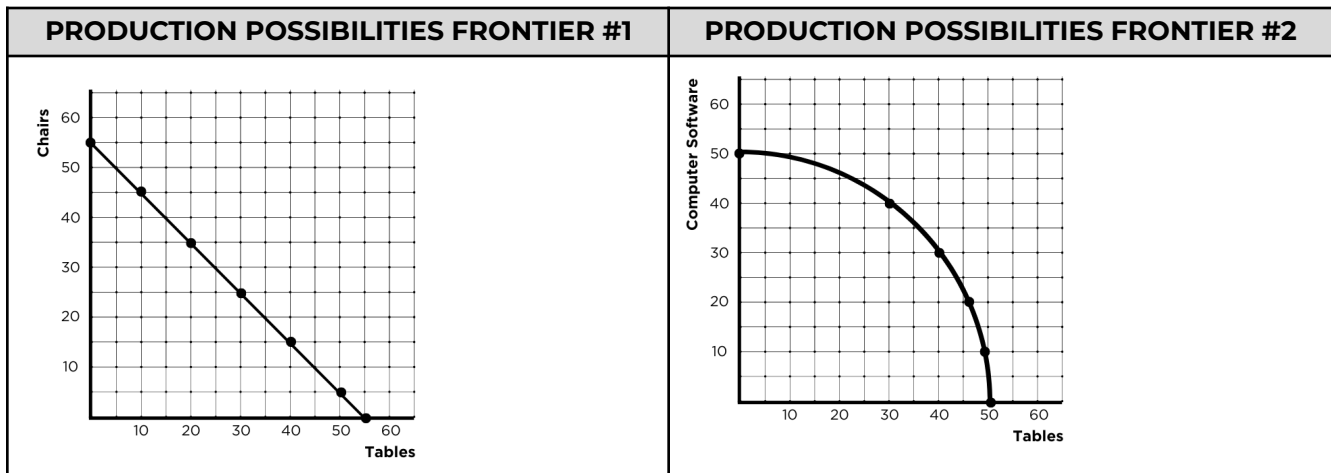
Overview:

In this section, students use two production possibilities frontier (PPF) graphs to explore the concept of opportunity cost. Through multiple-choice and short-answer questions, they analyze how shifting resources between two goods impacts production and efficiency. PPF #1 models a constant opportunity cost scenario, while PPF #2 illustrates increasing opportunity cost due to resource specialization.

Suggested Time: 25–30 minutes (20 minutes for completion, 5–10 minutes for debrief/discussion)

1. **Distribute the handout** or project the questions and graphs (PPF #1 and #2) for student reference.
2. Begin by reviewing or reintroducing the concept of a **production possibilities frontier** (PPF), emphasizing:
 - It shows the maximum possible output combinations of two goods using all available resources efficiently.
 - Opportunity cost is illustrated by the trade-offs along the curve.
 - A **straight-line PPF** indicates constant opportunity cost.
 - A **bowed-out PPF** indicates increasing opportunity cost.
3. **Guide students through the questions:**
 - Encourage them to use the curves directly to calculate opportunity cost between production points.
 - For multiple-choice items, have them mark the correct answer based on the data from the PPF.
 - For the explanatory question (increasing opportunity cost), encourage use of evidence from the scenario and graphs.
4. **Debrief the increasing opportunity cost question:**
 - Prompt students to consider how some resources (e.g., coders vs. carpenters) are not easily transferable between industries.

- Reinforce the visual of a bowed-out PPF to explain why costs increase as production expands.
5. **Optional extension/discussion:** Ask students to relate these trade-offs to real-world examples (e.g., labor shortages in tech or agriculture).



- Suppose an economy can produce only chairs and tables, as shown in PPF #1. If the economy is currently producing 55 chairs and 0 tables, but decides to increase table production to 10 tables, how many chairs must it give up to make that shift? (*Use the production possibilities curve to determine the opportunity cost of this decision.*)
 - 5
 - 10**
 - 15
 - 20
 - 40
- Suppose an economy produces only chairs and tables, as shown in PPF #1. If the economy is currently producing 15 chairs and 40 tables, but decides to increase production to 50 tables, how many chairs must it give up to make this change? (*Refer to the production possibilities curve to determine the opportunity cost in terms of chairs.*)
 - 5
 - 10**
 - 15
 - 20
 - 40
- What does a straight line PPF tell us about the country's production of these two goods?
 - Producing more tables increases the opportunity cost of producing chairs
 - The country has an absolute advantage in table production
 - Resources are equally well-suited to making both tables and chairs**
 - The country is experiencing increasing marginal returns
- Suppose an economy produces only computer software and tables, as shown in PPF #2. If it is currently producing 50 units of computer software and 0 tables, but chooses to increase table production to 30 units, how many units of computer software must be given up to make this change?
 - 5
 - 10**
 - 15

- d. 20
 - e. 30
5. Suppose an economy produces only computer software and tables, as shown in PPF #2. If the country is currently producing 40 tables, but decides to increase production to 50 tables, how many units of computer software must it give up to make this shift?
- a. 5
 - b. 10
 - c. 15
 - d. 20**
 - e. 30
6. According to PPF #2, the country gives up only about 6 units of computer software when increasing table production from 0 to 25 tables, but loses around 44 units of computer software when increasing from 25 to 50 tables.
- Why does producing additional tables result in a much greater loss of software output as production expands? *Explain your answer using the concept of increasing opportunity cost.*

1. Specialized Resources

- Some workers and machines are better suited to making software (e.g., programmers, servers)
- Others are better at making tables (e.g., carpenters, sawmills)
- At first, you shift the least efficient software resources to table production—so the cost in lost software is low

2. As You Shift More Resources to Tables...

- You start reassigning highly skilled software engineers or expensive computing resources
- These resources would have produced a lot of software, but now they're building tables instead (inefficient use!)
- So the software you're giving up per table increases. This is the increasing opportunity cost in action.

3. The Bowed-Out PPF Shows This Visually

- A straight-line PPF would mean constant opportunity cost (resources are equally adaptable)
- A bowed-out PPF shows that each additional table costs more and more software—because you're pulling better and better software-making resources into furniture production

Teacher Instructions – Part Four: How Free Trade and Tariffs Impact Markets

Overview:

In this section, students analyze how trade and tariffs affect market outcomes, including consumer surplus, producer surplus, and deadweight loss using a supply and demand graph. Students apply these concepts through multiple-choice and short-response questions. The goal is to help students understand how free trade increases total surplus, while tariffs redistribute benefits and reduce efficiency.

Suggested Time: 25–30 minutes (15–20 minutes for activity, 5–10 minutes for debrief)

1. Preview Key Terms Before Starting:

- Review the meaning of consumer surplus, producer surplus, tariff revenue, and deadweight loss.
- Clarify that P_W = World Price (with free trade), and P_T = Price after tariff.

2. Distribute the Graph-Based Questions:

- Ensure students have access to the labeled supply and demand diagram (with shaded areas or letters).
- Encourage students to work individually or in pairs to identify areas on the graph that change as trade conditions shift.

3. Guide Students Through the Phases:

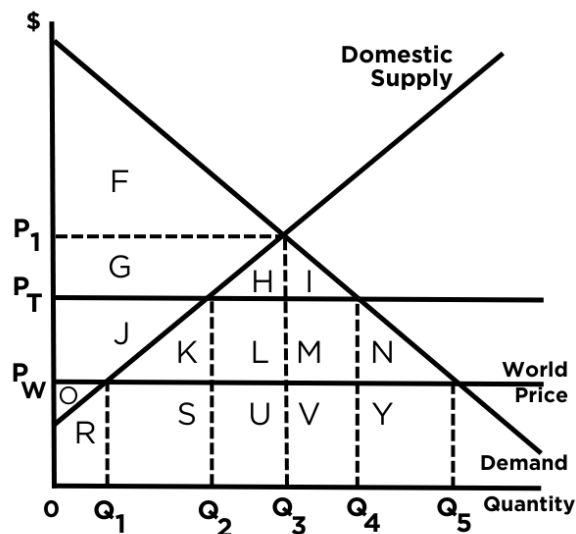
- Without Trade: Identify the domestic price and quantity (P_1 & Q_3).
- With Free Trade (P_W): Show how imports increase consumer surplus (and reduce producer surplus).
- With Tariffs (P_T): Examine how consumer surplus shrinks, producers gain some surplus back, and government collects tariff revenue—but overall efficiency drops.

4. Facilitate Discussion After Each Section:

- Ask students to explain why areas like J or K become tariff revenue or deadweight loss.
- Clarify how surplus shifts between consumers, producers, and government under different trade policies.

5. Wrap Up With Short-Response Questions:

- Use the final two questions (“Who is helped?” / “Who is hurt?”) to prompt class discussion or written reflections.
- Emphasize the idea that tariffs benefit some groups at the expense of others, and the overall effect is a net loss to economic efficiency.



1. What is the market price and quantity in a world without trade?

- P_1 & Q_3
- P_W & Q_1
- P_W & Q_5
- P_T & Q_4
- P_T & Q_2

2. Which letter(s) represents the area of consumer surplus in a world without trade?
 - a. G J O
 - b. F G H I
 - c. F**
 - d. O
 - e. K L M N

3. Suppose free trade is allowed and P_w represents the world price. What letter(s) represent the additional consumer surplus gained?
 - a. G H I
 - b. G J O
 - c. L M
 - d. G H I J K L M N**
 - e. H I

4. What might consumers do with that additional consumer surplus gained due to free trade?

Suggested Answer: Consumers might use the additional consumer surplus gained from free trade to buy more of the same good, spend on other products and services, save for future purchases, or invest in other areas of the economy. Because they're paying lower prices, they have more disposable income to use elsewhere.

 - *Emphasize that consumer surplus represents real purchasing power.*
 - *Free trade increases efficiency and broadens economic activity by freeing up income for other uses.*
 - *Reinforce how spending and saving behaviors triggered by lower prices can stimulate growth across multiple industries.*

5. Suppose the government decides to impose a tariff on imports of this good. P_T represents the world price plus the tariff. What letter(s) were consumer surplus in a free trade situation, but are no longer consumer surplus due to the tariff?
 - a. G H I
 - b. O R S U V Y
 - c. K N
 - d. G
 - e. J K L M N**

6. What letter(s) represents surplus that is now tariff revenue collected by the government and politics will determine what happens to that surplus?
 - a. J
 - b. L M**
 - c. K L M N
 - d. L M U V
 - e. F G H I

7. Which letter(s) represents lost efficiency due to the tariff because some transactions no longer occur at the new price with a tariff and transactions that still occur, but are domestic purchases at higher prices rather than purchases on a world market. *Economists call this deadweight loss.*
 - a. K N**
 - b. J K L M N
 - c. O

- d. N Y
- e. I M V N Y

8. Which letter(s) represents the area of producer surplus in a world without trade?
- a. **G J O**
 - b. F G H I
 - c. F
 - d. O
 - e. K L M N
9. Suppose free trade is allowed and P_w represents the world price. Which letter(s) represents surplus that was formerly captured by producers that now becomes consumer surplus?
- a. G H I
 - b. **G J**
 - c. H I K L M N
 - d. F
 - e. O
10. Suppose the government decides to impose a tariff on imports of this good. P_T represents the world price plus the tariff. What letter(s) represent consumer surplus in a free trade situation that becomes producer surplus after a tariff is implemented?
- a. **J**
 - b. O
 - c. J K L M N
 - d. F G H I
 - e. I M N V Y
11. Who is helped economically or financially by tariffs? Explain why.

Suggested Answer: Tariffs help domestic producers of the protected good because they make foreign goods more expensive, which reduces competition. This allows local producers to sell more and potentially raise their prices. In the short run, this can lead to higher profits, job protection, and more stability for certain industries. Governments may also benefit by collecting additional tariff revenue.

- Reinforce that tariffs shift demand toward domestic producers by artificially raising the price of imports.
- Emphasize the concept of a concentrated benefit—a small group gains noticeably (e.g., a domestic industry).
- Note that government revenue increases, but how that revenue is used depends on fiscal policy and politics.
- Help students think critically about the short-term vs. long-term implications of these gains.

12. Who is hurt economically or financially by tariffs? Explain why.

Suggested Answer: Tariffs hurt consumers, who have to pay higher prices for both imported and domestic goods due to reduced competition. They also hurt businesses that rely on imported inputs, as their production costs increase, making them less competitive. Finally, foreign producers lose access to the market, which can result in lost sales and jobs. Overall, the economy becomes less efficient, and the costs are spread out

across many people.

- *Emphasize that tariffs raise prices, reducing consumer purchasing power.*
- *Discuss how domestic firms that depend on imports—like manufacturers or retailers—face higher input costs.*
- *Highlight the concept of diffused costs: while the benefits are concentrated for a few, the economic harm is spread widely.*
- *Introduce the idea of retaliatory tariffs, which can further hurt exporters and escalate trade conflicts.*

“Tariffs are a concentrated benefit and a dispersed cost.”

Appendix A. Part Two Simulation Cards



WINE



WINE



WINE



WINE



WINE



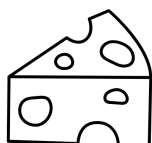
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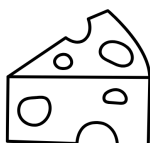
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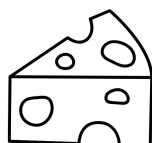
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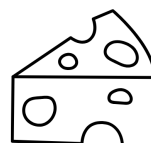
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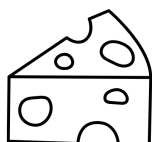
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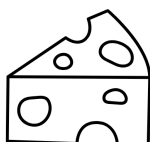
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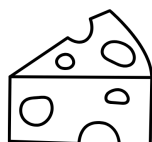
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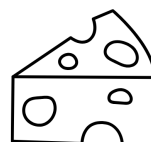
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OLIVE OIL



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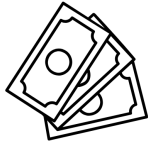
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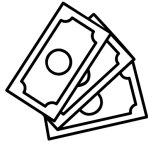
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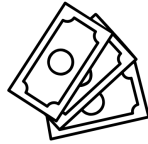
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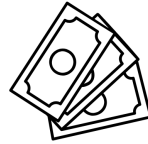
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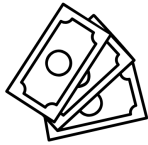
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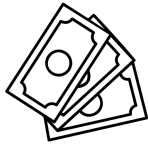
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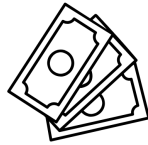
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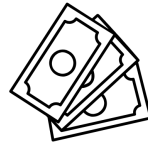
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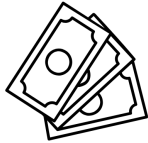
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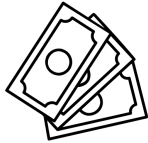
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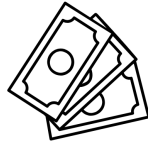
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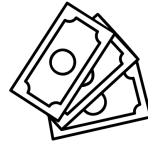
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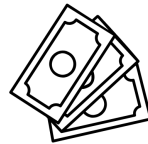
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