Trade

Why do nations trade?

INTERNATIONAL ECONOMICS
Trade Infographic Activity Worksheet

There are two ways to approach comparative advantage and opportunity cost. One approach, the output-per-fixed-input approach, appears on the infographic about trade. The output-per-fixed-input approach focuses on the number of products that an individual, business, or country can produce given a fixed amount of resources.

The alternate approach to calculating comparative advantage and opportunity cost is the input-per-fixed-output approach, which this supplemental activity uses. This example uses the amount of time it will take to produce a single unit of output.

The following chart provides hours it takes each country to produce one unit of output:

<table>
<thead>
<tr>
<th>Country</th>
<th>Chocolate bar</th>
<th>Chocolate cake</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>20</td>
<td>4</td>
</tr>
<tr>
<td>B</td>
<td>10</td>
<td>5</td>
</tr>
</tbody>
</table>

To determine the country with the absolute advantage, use the chart above to identify the country which uses the least number of labor hours to produce one unit of output. Write the country with the absolute advantage in the blanks:

Country with the absolute advantage in chocolate bars: ____________________________
Country with the absolute advantage in chocolate cake: ___________________________

Now calculate the opportunity cost of producing a single chocolate bar and a single chocolate cake for countries A and B. Calculate this number for chocolate bars for each country by placing the number of hours it takes to produce a unit of chocolate bars (the numerator) over the amount of hours it takes to produce a unit of chocolate cake (the denominator). This fraction is the opportunity cost for each country when it produces a unit of chocolate bars.

Repeat this process for chocolate cake by placing the number of hours it takes to produce a unit of chocolate cake (the numerator) over the number of hours it takes to produce a unit of chocolate bars. This fraction is the opportunity cost for each country when it produces a unit of chocolate cake. Show your work below:

<table>
<thead>
<tr>
<th>Country</th>
<th>Chocolate bar</th>
<th>Chocolate cake</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Now that you have the opportunity cost, identify which country has the lowest opportunity cost for producing each good. The country with the lowest opportunity cost has the comparative advantage.

1. Given the information you calculated in the table, which country has the comparative advantage for a chocolate bar? What about a chocolate cake?

2. Why are the ratios different when using inputs (the table calculation) than with the outputs (as on the infographic)?

3. How do the ratios inform the terms of trade decisions that each country might make?

4. How would each country benefit from specialization?
Trade Infographic Activity Worksheet (Answer Key)

There are two ways to approach comparative advantage and opportunity cost. One approach, the output-per-fixed-input approach, appears on the infographic about trade. The output-per-fixed-input approach focuses on the number of products that an individual, business, or country can produce given a fixed amount of resources.

The alternate approach to calculating comparative advantage and opportunity cost is the input-per-fixed-output approach, which this supplemental activity uses. This example uses the amount of time it will take to produce a single unit of output.

The following chart provides hours it takes each country to produce one unit of output:

<table>
<thead>
<tr>
<th>Input (labor hour) per item</th>
<th>Country</th>
<th>Chocolate bar</th>
<th>Chocolate cake</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>20</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>10</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

To determine the country with the absolute advantage, use the chart above to identify the country which uses the least number of labor hours to produce one unit of output. Write the country with the absolute advantage in the blanks:

Country with the absolute advantage in chocolate bars: **Country B**

Country with the absolute advantage in chocolate cakes: **Country A**

Now calculate the opportunity cost of producing a single chocolate bar and a single chocolate cake for countries A and B. Calculate this number for chocolate bars for each country by placing the number of hours it takes to produce a unit of chocolate bars (the numerator) over the amount of hours it takes to produce a unit of chocolate cake (the denominator). This fraction is the opportunity cost for each country when it produces a unit of chocolate bars.

Repeat this process for chocolate cake by placing the number of hours it takes to produce a unit of chocolate cake (the numerator) over the number of hours it takes to produce a unit of chocolate bars. This fraction is the opportunity cost for each country when it produces a unit of chocolate cake. Show your work below.

**Country A**
- \[ \frac{20 \text{ hours per chocolate bar}}{4 \text{ hours per chocolate cake}} = 5 \]
- \[ \frac{4 \text{ hours per chocolate cake}}{20 \text{ hours per chocolate bar}} = \frac{1}{5} \]

**Country B**
- \[ \frac{10 \text{ hours per chocolate bar}}{5 \text{ hours per chocolate cake}} = 2 \]
- \[ \frac{5 \text{ hours per chocolate cake}}{10 \text{ hours per chocolate bar}} = \frac{1}{2} \]

Trade Infographic Activity (Answer Key) (2015)
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https://www.frbatlanta.org/education
Now that you have the opportunity cost, identify which country has the lowest opportunity cost for producing each good. The country with the lowest opportunity cost has the comparative advantage.

1. Given the information you calculated in the table, which country has the comparative advantage for a chocolate bar? What about a chocolate cake?
   - Chocolate bars: Country B has the comparative advantage.
   - Chocolate Cakes: Country A has the comparative advantage.

2. Why are the ratios different when using inputs (the table calculation) than with the outputs (as on the infographic)?
   - The ratios are different because the output method requires you to evaluate the amount of resources (inputs) required to produce a certain fixed quantity of outputs while the input method requires you to evaluate the different quantities of output that will be produced with a fixed quantity of inputs.

3. How do the ratios inform the terms of trade decisions that each country might make?
   - Regardless of the method of calculation, input or output, the optimal terms of trade are between the two ratios to achieve mutually beneficial gains from specialization and trade.

4. How would each country benefit from specialization?
   - Each country would more effectively use productive resources to produce goods and services.

### Opportunity cost

<table>
<thead>
<tr>
<th>Country</th>
<th>Chocolate bar</th>
<th>Chocolate cake</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>5</td>
<td>1/5</td>
</tr>
<tr>
<td>B</td>
<td>2</td>
<td>1/2</td>
</tr>
</tbody>
</table>