Gains From Trade: Don’t Forget Productivity

1) **Specialization Gains**: if production is done by whoever is best at it and where it is done best, then:
   1) world production rises
   2) world consumption rise

2) **Productivity Gains**

   a) **More Competition**
      Although producers don’t like this, it usually means lower costs and better products for consumers.

   b) **Increased Technology Transfer**
      Technological progress is likely faster.

   c) **Economies of Scale**
      Sometimes large scale production means lower costs per unit. Trade allows firms (ex. Airbus & Boeing) to produce for world markets, not just local markets.
Comparative Advantage and Productivity in the Globalization Debate: Connecting the Dots

Gains From Trade: Some Statements.

1) Kathy Lee only pays her overseas workers $3/day to work in a sweatshop to produce clothes for Americans. I don’t want any part of that exploitation!

2) A firm can hire labor for $1.50/hour if it moves to Malaysia. How can American workers compete?

3) I’ve heard that, in effect, nations are battling for the high tech, high productivity sectors. What happens if America loses?
Problem 1: Each nation has 1000 laborers available per hour.

<table>
<thead>
<tr>
<th></th>
<th>Troy</th>
<th>Lemnos</th>
</tr>
</thead>
<tbody>
<tr>
<td>Olive Oil</td>
<td>3 hours</td>
<td>5 hours</td>
</tr>
<tr>
<td>Wheat</td>
<td>4 hours</td>
<td>5 hours</td>
</tr>
<tr>
<td>Olive Oil</td>
<td>3 hours</td>
<td>5 hours</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Troy</th>
<th>Lemnos</th>
</tr>
</thead>
<tbody>
<tr>
<td>Olive Oil</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wheat</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Comparative Costs (opportunity costs/output)
<table>
<thead>
<tr>
<th>Gains from Specialization</th>
<th>Troy</th>
<th>Lemnos</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumption Capita</td>
<td></td>
<td></td>
</tr>
<tr>
<td>= Consumption</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Exports</td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ Imports</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Olive Oil Wheat</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Greeks Sack Troy!

Troy – Troy has fallen. Agamemnon and his gang of Greeks sacked Troy last night. Reports indicate it was an inside job; the Greeks got inside the city without breaking down the city gates. Deadelus, has hypothesized that the Greeks invented flying machines called aeroplanes and dropped soldiers with large blankets to slow their fall. These “paratroopers” then opened the gates for a larger force of Greeks. Pasiphaë suggests that the Greeks might have built a wooden bull, filled it with Greek warriors, and waited for Trojans to take it inside their city. Theseus, however, discounts Pasiphaë’s theory as a load of more on TROJAN WAR on p XXV

Hermaphrodites Weds Self

Hermaphrodites, stating that “It is time for me to settle down and have children”, wed himself in a private ceremony on Samos. Prior to the wedding the couple was often in the headlines with their very public disagreements over everything from

More on HAPPY COUPLE on p XXI

Cyclopes Eyes Tourism

Cyclopes, Prime Minister of Naxos, indicated that he wants to bring more visitors to his island. The Naxos Chamber of Commerce, to this end, plans an add campaign title “Naxos, We’re More than Just Sheep”. Sirens report that

More on CYCLOPES on p XXII
Cretans Refuges Flee to Troy!

Troy – Troy, which only a year ago saw most of its physical capital looted in the Trojan War, is now experiencing a massive influx of refugees from Crete. The Cretan refugees report that their civilization collapsed. The Cretan government in Knossos could not be contacted to confirm this. This, in combination with the destruction of capital during the recent Trojan War will greatly reduce the capital a typical Trojan has to work with. Economic theory predicts that these two factors will greatly reduce output per worker hour in Troy. Falling produc-

Hermaphrodites Seeks Divorce

Hermaphrodites, stating that “I don’t know who he is anymore. The magic is gone.”, filed for divorce in Samos. Hermaphrodites countered, stating “I love her but she won’t give me any space. I never get alone time. As sad as a divorce will be, I’ll relish the time by myself.”

Sirens to Sing at Bass Hall

The Sirens open tonight at Bass Hall in downtown Troy. Daily Bugle Music critics who recently visited the Sirens … well … never returned. Nonetheless, ticket sales have surpassed all previous records at Bass Hall. Management claims that their decision to halt beeswax sales is
Problem 2: Lemnos has 1,000 labor hours. Troy has 2,000 labor hours.

<table>
<thead>
<tr>
<th></th>
<th>Olive Oil</th>
<th>Wheat</th>
<th>Olive Oil</th>
<th>Wheat</th>
<th>Olive Oil</th>
<th>Wheat</th>
<th>Olive Oil</th>
<th>Wheat</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Troy</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lemnos</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Productivity (output/unit of labor)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Absolute Costs (hours of labor/output)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comparitive Costs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Gains from Specialization

### Production vs. Consumption

<table>
<thead>
<tr>
<th></th>
<th>Troy</th>
<th>Lemnos</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production</td>
<td>Olive Oil</td>
<td>Wheat</td>
</tr>
<tr>
<td>Consumption</td>
<td>+ Exports</td>
<td>- Imports</td>
</tr>
<tr>
<td>Consumption Capita</td>
<td>= Consumption nos.</td>
<td></td>
</tr>
</tbody>
</table>

Assume the population = 2,000 in Troy and 1,000 in Lemnos. Consumption Capita.
Do Absolute Costs (i.e. productivity) Matter?

No … when it comes to determining what a nation should produce.

No … when it comes to determining whether or not a nation can gain from trade.

Yes … when it comes to determining a nation’s standard of living.
Gains From Trade: 4 Principles

1) **The Law of Comparative Advantage**: Differences in comparative costs, not absolute costs, are what determine trade patterns. Regardless of comparative costs, any nation’s citizens (on average) will gain from free trade.

**Harberger’s “Law”**\(^1\): Specialization gains \(\equiv 20\% \) of amount traded.

U.S. \(20\% \times 12\% \) of GDP \(\equiv 2.5\% \) of GDP

\[\equiv \$300 \text{ Billion}\]

\[\equiv \$990/\text{person} \ ($3,960 \text{ for a 4 person family})\]

But …by themselves, these are static (one time) gains.

---

\(^1\) The deadweight loss eliminated for both imports and exports with “typically” shaped demand and supply curves.
2) Productivity is the primary determinant of living standards. Relative living standards are largely a function of productivity differences.

A student, however, needs to do more than just understand 1) and 2) in isolation. He or she needs to synthesize them. This 3rd principle, shown below, is the central focus of this paper. It is a synthesis of 1) and 2):

3) a synthesis of 1) & 2) Productivity determines a nation's “base” standard of living from which it “trades up”. For a nation’s citizens to live better, the nation should take steps to increase productivity, and then, regardless of its productivity, freely trade with its neighbors to live even better.
4) In the long-run, the largest gain from trade is increased productivity resulting from the greater competition and knowledge transfer trade brings, not static Ricardian (i.e. specialization) gains. i.e. A good way for a nation to increase its productivity is to open itself to free trade.

A thought experiment. If the increased competition, greater knowledge transfer, etc. from trade increase productivity by 0.25%/year, how long does it take these productivity gains to exceed the Ricardian (specialization gains) of about 2.5% in the U.S.?

Answer: 10 years. $1.0025^{10} = 102.5\%$, i.e. a 2.5% improvement
Gains From Trade: Some Statements ... revisited

1) Kathy Lee only pays her overseas workers $3/day to work in a sweatshop to produce clothes for Americans. I don’t want any part of that exploitation!

Comparative Advantage: Assuming kidnapping and enslavement is not involved, these workers are there voluntarily. Why? Empirically, export led jobs tend to pay better than jobs for “domestic consumption.” i.e. These workers would likely be making only $2/day without trade.

Productivity: It is productivity differences not trade, likely explain the gap between these workers pay and U.S. workers pay.
2) A firm can hire labor for $1.50/hour if it moves to Malaysia. How can American workers compete?

Comparative Advantage: The law of comparative advantage says that U.S. can compete, i.e. sell to the rest of the world and gain from it regardless.

Productivity: The likely reason Malaysians are making (about) 1/6 a typical U.S. wage is that their productivity is (about) 1/6 of U.S. workers. Americans can continue to live at only about 6x level of Malaysians is the stay 6x as productive.

Ex. (although textiles is a bad choice)

Malaysia

\[\text{$1.50/hr \times 1\text{hour}/2 \text{ socks} = $0.75/\text{sock}}\]

USA

\[\text{$9.00/hr \times 1\text{hour}/18 \text{ socks} = $0.75/\text{sock}}\]
3) I’ve heard that, in effect, nations are battling for the high tech, high productivity sectors. What happens if America loses?

Comparative Advantage: America can still compete in world markets. Further, trade will increase absolute living standards in the U.S.

Productivity: But U.S. living standards relative to the rest of the world may fall. Our children will live better than us, but not as good as Canadian’s kids.

Is this the end?

But Wait! There’s more!
Productivity Convergence: an Analogy

Scenario 1:

Jan is a 16 year old swimmer in the U.S. She trains at the U.S. Olympic center. She uses the most modern physical and mental training techniques in the world. She also has the best nutrition & analysis available.

Jan has a world class time in the 400 meters.

Jan is improving her time, but only in small increments. She is already close to the top of her game.

Sita is a 16 year old swimmer from rural India. She has the same innate athletic ability as Jan. She never has used modern training techniques. Sita now adopts the same training, nutritional, & analysis techniques as Jan.

Sita has a lousy time for an Olympic athlete.

Sita, however, will rapidly improve her time. There is lots of room for improvement.

Sita will likely converge on Jan from below.
Scenario 2:

**The United States** is a country. The U.S. has had a pro-growth environment (relatively free markets, public education, etc.) for a long time.

The U.S. has a world class output/worker.

The U.S. is improving its output/worker, but only in small increments. It is already close to the top of the game.

**India** is a country. Indians likely have the same innate athletic ability as Jan. India has had years of less than optimal growth policies. India is now shifting towards pro-growth policies (more) similar to that of the United States.

India has a relatively low GDP/capita.

India, however, will rapidly improve its output/worker. There is lots of room for improvement.

India will likely converge on the U.S from below.
Higher productivity growth in India, China, etc. should not come as a surprise.

Will India, China, etc. overtake the U.S.? Only if their “fundamentals” are better than that of the U.S. Currently, this does not appear to be the case.
In the words of Oliver Twist; “May I have some more please?”

The Hecksher-Ohlin Theorem
A factor which is more abundant in a country than in the world as a whole gains the most from trade. A factor which is less abundant in a country than the world as a whole gains less or loses from trade.

Say What?
Scenario 1: Assume the population of each High School is predominantly heterosexual.

**Testosterone High**
- We’re hot commodities locally!
- We don’t want interschool dating.
- We’re a dime a dozen locally! We want interschool dating.

**Estrogen PolyTech**
- We’re hot commodities locally!
- We don’t want interschool dating.
- We’re a dime a dozen locally! We want interschool dating.

**Barriers to Interschool Dating**
Scenario 2: Who gains the most from free(r) trade?

Highly Educated and Skilled

Rest of World
We should make our own movies offer our own financial services, etc.
We don’t need free trade.

Give us Free Trade!

Barriers to International Trade

U.S.A.
Sure we earn a bit less than the educated and skilled.
However, we’re relatively hot locally!
We don’t want free trade.

Give us Free Trade!