Imagine a primitive society where humans associate into clans, and members work within the clans to catch salmon and grow bushels of grain. Below are two production Possibilities Frontiers (PPFs) for Wu Tang Clan and No Tang Clan. Bushels of grain produced per day are on the y-axis, while the x-axis measures the number of salmon caught per day. The large circle indicates where the clans are producing/consuming in autarky (remember autarky means no trade between clans).

(1) What are the mathematical formulas for the PPFs below?

Wu Tang Clan: Bushels of Grain = \_\_\_\_\_ - \_\_\_\_ (Number of Salmon Caught)

No Tang Clan: Bushels of Grain = \_\_\_\_\_ - \_\_\_\_ (Number of Salmon Caught)



(2) For the Wu Tang Clan, the opportunity cost of one bushel of grain is \_\_\_\_\_\_ salmon(s).
(3) For the Wu Tang Clan, the opportunity cost of one salmon is \_\_\_\_\_\_ bushel(s) of grain.
(4) For the No Tang Clan, the opportunity cost of one bushel of grain is \_\_\_\_\_\_ salmon(s).
(5) For the No Tang Clan, the opportunity cost of one salmon is \_\_\_\_\_\_ bushel(s) of grain.

		Production	Exports	Imports	Consumption
Wu Tang Clan	Bu Grain				
	Salmon				
No Tang Clan	Bu Grain				
	Salmon				

(6) The two clans reside in *autarky*, meaning the two clans do not trade with one another. Fill in the table below.

(7) Working with a partner, pretend that you are one clan and your partner is another clan. Devise a trade of grain for salmon for the two clans that will allow both of them to consume outside their PPFs—allowing them to get something from nothing.

Wu Tang will trade \_\_\_\_\_\_ bushels of grain for \_\_\_\_\_\_ salmon.

No Tang will trade \_\_\_\_\_\_ bushels of salmon for \_\_\_\_\_\_ grain.

(8) Depict this trade below and show how it allows both clans to gain from trade and get something from nothing.

		Production	Exports	Imports	Consumption
Wu Tang Clan	Bu Grain				
	Salmon				
No Tang Clan	Bu Grain				
	Salmon				

(9) After trade, Wu Tang Clan gains \_\_\_\_\_ bu grain and \_\_\_\_\_ salmon, relative to autarky.

(10) After trade, No Tang Clan gains \_\_\_\_\_ bu grain and \_\_\_\_\_ salmon, relative to autarky.

In this worksheet we will learn the concept of *comparative advantage* and how people, groups, and nations gain from trading with one another. You have heard the saying: *there is no such thing as a free lunch*. That saying is wrong. You can get something from nothing, and I'll show you how, using an economic model.

Suppose we have two countries, the U.S. and Cuba, whose production possibilities frontiers (PPFs) for producing beer and cigars are as follows.

U.S. - Number Cigars Produced = 20 – 1(Number Beers Produced)

Cuba - Number Cigars Produced = 20 – 2(Number Beers Produced)

(11) Plot the PPF's for each country below. Clearly label which country corresponds to each PPF.



(12) For the U.S., the opportunity cost of producing one beer is \_\_\_\_\_\_ cigar(s).

(13) For the U.S., the opportunity cost of producing one cigar is \_\_\_\_\_\_ beer(s).

- (14) For Cuba, the opportunity cost of producing one beer is \_\_\_\_\_ cigar(s).
- (15) For Cuba, the opportunity cost of producing one cigar is \_\_\_\_\_\_ beer(s).

(16) The two countries reside in *autarky*, meaning the two countries do not trade with one another. Fill in the table below.

		Production	Exports	Imports	Consumption
U.S.	Cigars				
	Beers				
Cuba	Cigars				
	Beers				

(17) Now suppose that the two countries engage in trade. We will learn that when countries trade, they will produce the good for which they possess a comparative advantage, the good with the lowest

opportunity cost, and only that good. If this is the case, then the U.S. will be producing \_\_\_\_\_\_ cigars

and \_\_\_\_\_ beers, while Cuba will be producing \_\_\_\_\_ cigars and \_\_\_\_\_ beers.

(18) After trade, suppose that Cuba trades 10 cigars for 7 beers, meaning Cuba exports 10 cigars to the U.S. and imports 7 beers from the U.S. Fill in the table below.

		Production	Exports	Imports	Consumption
U.S.	Cigars				
	Beers				
Cuba	Cigars				
	Beers				

(19) After trade, Cuba gains \_\_\_\_\_ beers and \_\_\_\_\_ cigars, relative to autarky.

(20) After trade, the U.S. gains \_\_\_\_\_ beers and \_\_\_\_\_ cigars, relative to autarky.

(21) For the U.S., indicate the point of consumption on the PPF curve before trade. Then, indicate the point of consumption for the U.S. after trade. Do the same for Cuba.

(22) Can you get something for nothing? How?

### (2.a) Comparative advantage and gains from trade

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#### 1. A Production Possibilities Frontier is a curve depicting the ...

- a. The maximum amount of good A one region can produce, given it is producing a certain amount of good B.
- b. All the various "feasible" points of production for goods A and B for a region.
- o c. All the various combinations of consumption of goods A and B a region can realize, if it trades with other regions
- o d. both a and b

#### 2. In the graph below, the formula for the U.S. PPF is...?

- o a) US: Meat = 200 1(Veggies)
- o b) US: Meat = 200 1(Veggies)
- o c) US: Meat = 200 2(Veggies)
- o d) US: Meat = 200 (1/2)(Veggies)

#### 3. In the graph below, the formula for the E.U. PPF is...?

- o a) EU: Meat = 200 (1/2)(Veggies)
- b) EU: Meat = 200 2(Veggies)
- o c) EU: Meat = 200 1(Veggies)

o d) EU: Meat = 100 - 2(Veggies)





- 4. In the graph below, the formula for the U.S. PPF is...?
- o a) US: Meat = 200 1(Veggies)
- o b) US: Meat = 200 2(Veggies)
- o c) US: Meat = 100 (1/2)(Veggies)
- o d) US: Meat = 100 1(Veggies)

5. In the graph below, the formula for the E.U. PPF is...?

- o a) EU: Meat = 100 (1/2)(Veggies)
- o b) EU: Meat = 100 2(Veggies)
- o c) EU: Meat = 200 1(Veggies)
- o d) EU: Meat = 200 (1/2)(Veggies)

### Use this graph to answer questions 4 and 5.



6. If the PPF for a clan is: grain = 10 - (3/4)(salmon), the opportunity cost of grain is \_\_\_\_\_ salmon.

(Enter the precise number, and only a number)

7. If the PPF for a clan is: grain = 10 - (3/4)(salmon), the opportunity cost of salmon is \_\_\_\_\_ grain.

(Enter the precise number, and only a number)

8. If the PPF for a clan is: grain = 10 - (1/2)(salmon), the opportunity cost of salmon is \_\_\_\_\_ grain.

(Enter the precise number, and only a number)

9. If the PPF for a clan is: grain = 10 - (1/2)(salmon), the opportunity cost of grain is \_\_\_\_\_ salmon.

(Enter the precise number, and only a number)

10. If the opportunity cost of one grain is 1/5 salmon, the opportunity of one salmon must be \_\_\_\_\_grain.

(Enter the precise number, and only a number)

## 11. If a country can produce salt at a lower opportunity cost than the U.S., that country has a(n) \_\_\_\_\_\_ in salt.

absolute advantage

relative advantage

- o comparative advantage
- production advantage

12. Countries can only consume at a point outside (above, and to the right) of their PPF curve if they...

- a. exploit their laborers
- b. engage in slavery
- o c. trade with other regions
- o d. export goods but do not import anything
- e. both c and d

# 13. When two countries engage in and benefit from trade (and have linear PPFs), each country will produce ...

- o a. only those goods for which they have a comparative advantage
- b. only those goods in which they produce at a lower opportunity cost
- o c. all the goods which they can produce the most number of units, relative to other countries
- o d. any good, it doesn't matter, as both countries will still benefit from trade
- e. both a and b

# 14. Trade is such a blessing to the world because it allows every region to "get something for nothing",

- o True
- o False

# 15. When countries trade, the type of food a country produces doesn't tell us everything about the type of foods that country consumes.

- o True
- o False

16. Two countries can always engage in trade so long as their PPFs are different. If the PPFs are the same, they are neither harmed nor benefited by trade.

- o True
- False

### Use the following information for questions 17 & 18.

Suppose that, initially, the US and EU do not engage in trade. In autarky, the U.S. produces and consumes 1,000 Meat

and 2,000 Veggies, while the EU produces and consumes 1,500 Meat and 2,000 Veggies. Once they engage in trade, the US produces 4,500 Veggies and no Meat, while the EU produces no Veggies and 3,000 Meat.

# 17. True or False: If the U.S. and EU traded 2,000 Veggies for 1,000 Meat, both countries are made unambiguously better off.

- o True
- o False

# 18. True or False: If the U.S. and EU traded 1,000 Veggies for 2,000 Meat, both countries are made unambiguously better off.

- o True
- o False

#### 19. The anti-globalization crowd is largely against international trade because ...

- They believe trade allows multinational corporations to "bully and oppress" smaller countries.
- They believe most countries have near identical PPFs
- They believe most countries have non-linear PPFs
- They don't believe in the concept of comparative advantage

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## (2.b.i) The bounty of trade: When Robinson met Friday

#### Enter your last name

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1. True or False? Through trade, countries can sometimes obtain goods they could never produce themselves at a reasonable cost.

o True

o False

2. True or False? When discussing trade, the opportunity cost of producing a good refers to the value of the goods a party could have produced instead.

o True

o False

3. True or False? Robinson is able to produce 5 fish in one hour while Friday can produce 10 fish in one hour. Friday therefore has the comparative advantage in fish production.

o True

o False

4. True or False? When it comes to determining who has a comparative advantage in fish, it doesn't matter how many fish one can catch in an hour, but the good(s) they could have produced in the time it takes to catch one fish.

o True

o False

5. True or False? When two parties go from not trading to trading with one another, each party will produce more of the good in which they have a comparative advantage.

- o True
- False

6. True or False? The division-of-labor refers to the act of many people producing a good by dividing the tasks among the group members, each person doing the task they perform the best, leaving other tasks to other workers.

- o True
- o False

7. True or False? If there are 100 goats to milk and Robinson and Friday split the goats in half, each performing all the tasks necessary to acquire milk from 50 goats, that is an example of division-of-labor.

- o True
- o False

8. True or False? Economies-of-scale is said to occur when the per unit cost of production falls as more units are produced.

- o True
- False

9. True or False? Becoming a "big" producer of beer allows a firm to brew beer cheaply, partly because only a big brewer can afford expensive machines and equipment.

- o True
- o False

10. True or False? Becoming a "big" producer of beer allows a firm to brew beer cheaply, partly because the bigger the firm the easier it is to employ a division-of-labor among the employees, where each worker concentrates on what they are best at.

- o True
- o False

11. True or False? Trade helps firms experience economies-of-scale because it increase the number of potential customers for the firm, making it easier for them to produce and sell large amounts of a good.

- o True
- False

12. True or False? Two countries can benefit from trade even if they have identical resources and people.

- o True
- False

13. True or False? In The Republic, the Greek philosopher Plato described the benefits of the division-of-labor when he asked, "And will you have a work better done when the workman has many occupations, or when he has only one?"

o True

• False

14. True or False? The northeastern colonies in the U.S. were able to become a major exporter of rum even though its climate and resources are unsuited to rum production. The reason is that the division-of-labor and economies-of-scale can overcome such natural disadvantages.

o True

• False

15. True or False? Adam Smith wrote about the benefits of trade with others in his groundbreaking book, Economic Harmonies.

- o True
- False

16. True or False? Bastiat was a nineteenth century economist and journalist who wrote Economic Harmonies.

- o True
- False

17. True or False? Economic Harmonies, where the benefits of trading with strangers is described in detail, was written by an Scottish moral philosopher, David Hume.

o True

• False

18. True or False? In Economic Harmonies, the reader is made to ponder about how little they could produce in isolation, without the ability to trade with others in society, and how much they get to consume as a member of a society where one can buy from and sell to others.

o True

• False

19. True or False? Responding to Bastiat, David Hume wrote in Economic Harmonies, "It is impossible not to be struck with the measureless disproportion between the enjoyments which

this man derives from society and what he could obtain by his own unassisted exertions. I venture to say that in a single day he consumes more than he could himself produce in ten centuries."

- o True
- False

20. True or False? This quote from Economic Harmonies, "It is impossible not to be struck with the measureless disproportion between the enjoyments which this man derives from society and what he could obtain by his own unassisted exertions. I venture to say that in a single day he consumes more than he could himself produce in ten centuries," is intended to show that our main source of wealth is trade with strangers.

- o True
- o False

21. True or False? This is what Bastiat looks like.

- o True
- o False

### Is this Bastiat?



22. Trade helps firms experience \_\_\_\_\_\_ because it increase the number of potential customers for the firm, making it easier for them to produce and sell large amounts of a good.

- a. Economies of scale
- o b. Comparative advantage
- c. Division of labor
- d. Opportunity cost

23. Becoming a "big" producer of beer allows a firm to brew beer cheaply, partly because the bigger the firm the easier it is to employ a(n) \_\_\_\_\_ among the employees, where each worker concentrates on what they are best at.

(2.b.i) The bounty of trade: When Robinson met Friday

- a. Economies of scale
- o b. Comparative advantage
- o c. Division of labor
- o d. Opportunity cost

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## (2.b.ii) David Hume meets a locavore

#### Enter your last name

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1. True or False? Adam Smith [according to Dr. Norwood] wrote the first modern piece on economics in his article, On The Balance Of Trade.

o True

o False

2. True or False? David Hume was the father of the Scottish Enlightenment in the eighteenth century.

o True

o False

3. True or False? A region cannot choose to export but not import, as imports and exports must always, over time, equal one another.

o True

o False

4. True or False? If a region attempts to export but not import, money will accumulate in the region and goods will become scarce, causing prices to rise. If this continues, prices will become so high that people will insist on importing cheaper goods, and other regions will be clamoring to export to the region in order to profit from higher prices. This will force imports to rise until, once again, imports equal exports.

o True

False

5. True or False? If a region attempts to export but not import, currency will flow out of the region and a surplus of goods will accumulate. This will cause prices in the region to fall, and producers in the region will eventually be forced to export to other regions where prices are higher, thereby forcing exports and imports to once again equal.

o True

• False

6. True or False? If Region A attempts to import but not export, currency will flow out of the region and a surplus of goods will accumulate. This will cause prices in Region A to fall, and other regions will want to take advantage of low prices and will begin importing from Region A. Region A will see its exports rise and rise, until its exports and imports equal one another.

o True

o False

7. True or False? If a region attempts to export but not import, currency will flow out of the region and a surplus of goods will accumulate. This will cause prices in the region to fall, and producers in the region will eventually be forced to export to other regions where prices are higher, thereby forcing exports and imports to once again equal.

o True

• False

8. True or False? A region can only choose whether or not it will trade. It cannot choose between exporting and importing as if they were separate choices.

o True

o False

9. True or False? Trade policy should encourage exports and discourage imports.

- o True
- o False

10. True or False? It is better to import than export, for the former keeps money in the local economy, while in the latter money leaves the economy.

o True

o False

11. True or False? Every dollar spent on imports is associated with a dollar of exports from the region, bringing that dollar spent on imports back to the local economy.

o True

• False

12. True or False? One benefits the local economy by buying local or non-local.

- o True
- False

13. True or False? Most of our wealth stems from trade with other people. The local food movement doesn't only wish to keep its money within the local economy. It wishes to prevent trade, and all the wealth that trade makes available.

- o True
- False

14. True or False? Buying local food is a good idea if the food provides more value to consumers, like higher quality at the same price, the same quality at a lower price, or the like.

- o True
- o False

15. True or False? Boone Pickens claims that importing oil causes U.S. dollars to leave the U.S. economy, resulting in a loss of wealth, but if exports and imports must equal, those dollars must return to the U.S. in the form of U.S. exports.

- o True
- False

16. True or False? Banning imports of foreign oil will reduce U.S. imports while leaving exports from the U.S. unaffected.

- o True
- False

17. True or False? Banning all U.S. imports is the same as banning all trade with other countries.

- o True
- False

18. True or False? If the U.S. government banned imports of foreign oil, it will also cause U.S. exports to fall.

- o True
- o False

19. True or False? [Regarding Video 1] Locavores like John English argue that buying local food

stimulates the local economy, because that dollar kept within the economy is passed from one person to the next, such that one dollar has a multiplier effect, creating five or six extra dollars of income for the local community [note: this only asks what Mr. English believes, not whether that belief is valid].

- o True
- False

20. True or False? [Regarding Video 1] The multiplier argument offered by the locavore John English is invalid because it doesn't account for the fact that a dollar spent importing food doesn't leave the community forever, but comes back to the community in the form of exports.

- o True
- False

21. True or False? [Regarding Video 1] If locavore John English's argument about multipliers is correct, then a small town should never want to import anything, and should thus prohibit all trade with other towns, states, and countries. It even suggests Robinson Crusoe should have the most efficient economy because Robinson has no one to trade with.

o True

o False

22. True or False? [Regarding Video 1] Tom Vilsack was the Secretary for Agriculture during the Obama administration. When he argued, "In a perfect world, everything that was sold, everything that was purchased and consumed would be local, so the economy would receive the benefit of that," he was identifying with the multiplier argument purported by locavores.

- o True
- False

#### 23. Banning imports of foreign oil will reduce U.S. imports while exports from the U.S. will be...

- o a. Unaffected, exports and imports are not directly connected
- o b. Increased, regardless of our importing
- o c. Decreased, becoming equal to the imports
- o d. There is no way to know

# 24. If a region tries (though it will ultimately fail) to maintain high exports but bans all imports, it will experience ...

- o a. An increase in money but higher local prices
- b. An increase in money but lower local prices
- o c. A decrease in money but higher local prices
- o d. A decreasee in money but lower local prices

(2.b.ii) David Hume meets a locavore

25. \_\_\_\_\_ was the father of the Scottish Enlightenment in the 18th century.

- o a. David Hume
- o b. Confucius
- o c. Bastiat
- o d. Adam Smith

#### 26. This is what David Hume looks like.

- o a. True
- o b. False

### Is this David Hume?



27. Abraham Lincoln once remarked, "I don't know much about the tariff, but I do know if I buy a coat in America, I have a coat and America has the money—if I buy a coat in England, I have the coat and England has the money." Identify the weaknesses in his argument, paying particular attention to what Lincoln fails to recognize about currency exchanges when two countries trade.

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(2.b.ii) David Hume meets a locavore

### (2.c) The parable of the magic island

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1. True or False? The Parable of the Magic Island was about the effect of an island that converts one nation's currency into another nation's currency.

o True

o False

2. True or False? The Parable of the Magic Island is intended to demonstrate that trading with others is akin to magic, in that it allows a nation to acquire a permanent increase in wealth by only paying a temporary economic adjustment cost.

o True

o False

3. True or False? The Parable of the Magic Island is intended to demonstrate that a country trading with other countries has the same consequences for an economy as a technological innovation.

o True

o False

4. True or False? The Parable of the Magic Island is intended to demonstrate that international trade and technological innovation have vastly different consequences for an economy.

- True
- False

5. True or False? The Parable of the Magic Island is intended to demonstrate that, like magic, benefits from international trade are simply not real.

- o True
- o False

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