#### Interdependence and the Gains from Trade

Microeconomics for Students of Accounting, Finance, and Digital Applications

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#### Point of view is worth 80 IQ points.

Alan Kay (1982)

#### Introduction

mutuality of advantage from voluntary exchange is... the most fundamental of all understandings in economics

James Buchanan (2001)

# A Parable for the Modern Economy

#### Why People Trade

Variety is the very spice of life, That gives it all its flavor.

WILLIAM COWPER (1785)

Frankie

a farmer who can only produce potatoes

Farmer Ronnie

a rancher who can only produce meat

Rancher

Can both Ronnie and Frankie gain by trading with each other? If *yes*, who should produce meat and who should produce potatoes?

?

# Absolute Advantage

# Why People Trade

It is a maxim of every prudent master of a family, never to attempt to make at home what it will cost him more to make than to buy.

ADAM SMITH (1776)

Frankie Farmer Ronnie Rancher a farmer who can produce both meat and potatoes

a rancher who can produce meat faster than Frankie but is slower than Frankie in producing potatoes



Can both Ronnie and Frankie gain by trading with each other? If *yes*, who should specialize in producing meat and who should specialize in potatoes?

	Time to make 1 kg		Production per hour	
	meat	potatoes	meat	potatoes
Frankie Farmer	30 min	20 min	?	?
Ronnie Rancher	20 min	30 min	?	?

	Time to make 1 kg		Production per hour	
	meat	potatoes	meat	potatoes
Frankie Farmer	30 min	20 min	2 kg	3 kg
Ronnie Rancher	20 min	30 min	3 kg	2 kg

	Time to make 1 kg		Productio	n per hour
	meat	potatoes	meat	potatoes
Frankie Farmer	30 min	20 min	2 kg	3 kg
Ronnie Rancher	20 min	30 min	3 kg	2 kg

	Production per hour		Production	Production in 8 hours	
	meat	potatoes	meat	potatoes	
Frankie Farmer	2 kg	3 kg	?	?	
Ronnie Rancher	3 kg	2 kg	?	?	

	Time to make 1 kg		Production per hour	
	meat	potatoes	meat	potatoes
Frankie Farmer	30 min	20 min	2 kg	3 kg
Ronnie Rancher	20 min	30 min	3 kg	2 kg

	Production per hour		Production	Production in 8 hours	
	meat	potatoes	meat	potatoes	
Frankie Farmer	2 kg	3 kg	16 kg	24 kg	
Ronnie Rancher	3 kg	2 kg	24 kg	16 kg	

#### Frankie's Range of Choices

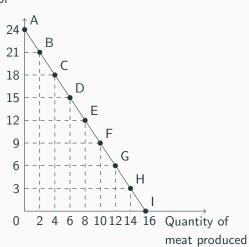
	Time spent		Production	
Frankie Farmer	meat	potatoes	meat	potatoes
Α	0 hr	8 hr	?	?
В	1 hr	7 hr	?	?
С	2 hr	6 hr	?	?
D	3 hr	5 hr	?	?
E	4 hr	4 hr	?	?
F	5 hr	3 hr	?	?
G	6 hr	2 hr	?	?
Н	7 hr	1 hr	?	?
I	8 hr	0 hr	?	?

# Frankie's Range of Choices

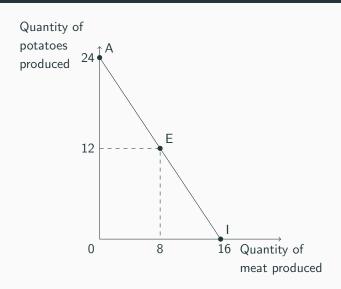
	Time spent		Prod	uction
Frankie Farmer	meat	potatoes	meat	potatoes
Α	0 hr	8 hr	0 kg	24 kg
В	1 hr	7 hr	2 kg	21 kg
С	2 hr	6 hr	4 kg	18 kg
D	3 hr	5 hr	6 kg	15 kg
E	4 hr	4 hr	8 kg	12 kg
F	5 hr	3 hr	10 kg	9 kg
G	6 hr	2 hr	12 kg	6 kg
Н	7 hr	1 hr	14 kg	3 kg
I	8 hr	0 hr	16 kg	0 kg

#### Frankie's Range of Choices: Diagram





#### Frankie's Range of Choices: Diagram



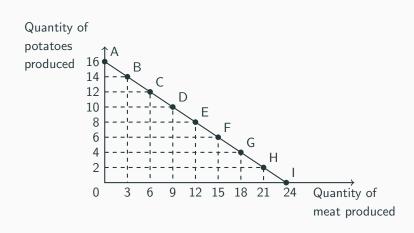
#### Ronnie's Range of Choices

	Time spent		Prod	luction
Ronnie Rancher	meat	potatoes	meat	potatoes
Α	0 hr	8 hr	?	?
В	1 hr	7 hr	?	?
С	2 hr	6 hr	?	?
D	3 hr	5 hr	?	?
E	4 hr	4 hr	?	?
F	5 hr	3 hr	?	?
G	6 hr	2 hr	?	?
Н	7 hr	1 hr	?	?
I	8 hr	0 hr	?	?

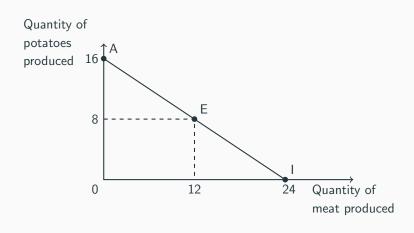
#### Ronnie's Range of Choices

	Time spent		Prod	uction
Ronnie Rancher	meat	potatoes	meat	potatoes
Α	0 hr	8 hr	0 kg	16 kg
В	1 hr	7 hr	3 kg	14 kg
С	2 hr	6 hr	6 kg	12 kg
D	3 hr	5 hr	9 kg	10 kg
E	4 hr	4 hr	12 kg	8 kg
F	5 hr	3 hr	15 kg	6 kg
G	6 hr	2 hr	18 kg	4 kg
Н	7 hr	1 hr	21 kg	2 kg
I	8 hr	0 hr	24 kg	0 kg

#### Ronnie's Range of Choices: Diagram



#### Ronnie's Range of Choices: Diagram



	Time spent		Production	
Frankie Farmer	meat	potatoes	meat	potatoes
A	0 hr	8 hr	0 kg	24 kg
E	4 hr	4 hr	8 kg	12 kg
	8 hr	0 hr	16 kg	0 kg
Ronnie Rancher	meat	potatoes	meat	potatoes
Α	0 hr	8 hr	0 kg	16 kg
E	4 hr	4 hr	12 kg	8 kg
I	8 hr	0 hr	24 kg	0 kg
Total (E)	?	?	?	?

	Time spent		Production	
Frankie Farmer	meat	potatoes	meat	potatoes
A	0 hr	8 hr	0 kg	24 kg
E	4 hr	4 hr	8 kg	12 kg
I	8 hr	0 hr	16 kg	0 kg
Ronnie Rancher	meat	potatoes	meat	potatoes
Α	0 hr	8 hr	0 kg	16 kg
E	4 hr	4 hr	12 kg	8 kg
I	8 hr	0 hr	24 kg	0 kg
Total (E)	8 hr	8 hr	20 kg	20 kg

	Production		Consumption	
Frankie Farmer	meat	potatoes	meat	potatoes
E	8 kg	12 kg	8 kg	12 kg
Ronnie Rancher	meat	potatoes	meat	potatoes
Е	12 kg	8 kg	12 kg	8 kg
	meat	potatoes	meat	potatoes
Total (autarky)	20 kg	20 kg	?	?

	Production		Consumption	
Frankie Farmer	meat	potatoes	meat	potatoes
E	8 kg	12 kg	8 kg	12 kg
Ronnie Rancher	meat	potatoes	meat	potatoes
Е	12 kg	8 kg	12 kg	8 kg
	meat	potatoes	meat	potatoes
Total (autarky)	20 kg	20 kg	20 kg	20 kg

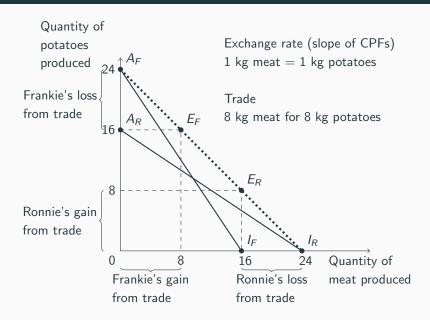
#### Cooperation and Trade's Most Likely Outcome

	Time spent		Production	
Frankie Farmer	meat	potatoes	meat	potatoes
Trade (A)	0 hr	8 hr	0 kg	24 kg
Autarky (E)	4 hr	4 hr	8 kg	12 kg
Ronnie Rancher	meat	potatoes	meat	potatoes
Autarky (E)	4 hr	4 hr	12 kg	8 kg
Trade (I)	8 hr	0 hr	24 kg	0 kg
Total (trade)	?	?	?	?

# Cooperation and Trade's Most Likely Outcome

	Time spent		Production	
Frankie Farmer	meat	potatoes	meat	potatoes
Trade (A) Autarky (E)	<b>0 hr</b> 4 hr	<b>8 hr</b> 4 hr	<b>0 kg</b> 8 kg	<b>24 kg</b> 12 kg
Ronnie Rancher	meat	potatoes	meat	potatoes
Autarky (E)  Trade (I)	4 hr <b>8 hr</b>	4 hr <b>0 hr</b>	12 kg <b>24 kg</b>	8 kg <b>0 kg</b>
Total (trade)	8 hr	8 hr	24 kg	24 kg

#### Consumption Possibility Frontiers and the Exchange Rate



# Frankie Trades 12 kg Potatoes for 12 kg Meat

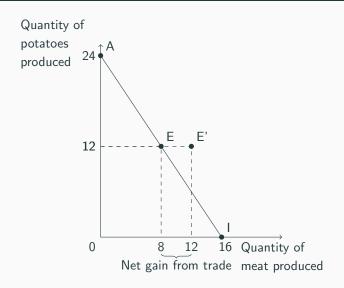
	Production		Consumption	
Frankie Farmer	meat	potatoes	meat	potatoes
Autarky (E)	8 kg	12 kg	8 kg	12 kg
Trade (A)	0 kg	24 kg	?	?
Ronnie Rancher	meat	potatoes	meat	potatoes
Autarky (E)	12 kg	8 kg	12 kg	8 kg
Trade (I)	24 kg	0 kg	?	?
	meat	potatoes	meat	potatoes
Total	24 kg	24 kg	?	?

16

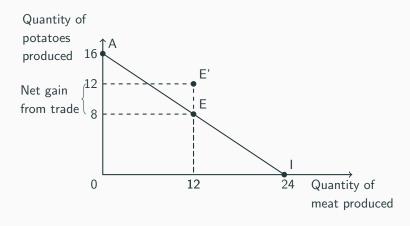
# Frankie Trades 12 kg Potatoes for 12 kg Meat

	Production		Consumption	
Frankie Farmer	meat	potatoes	meat	potatoes
Autarky (E)	8 kg	12 kg	8 kg	12 kg
Trade (A)	0 kg	24 kg	8+4  kg	12 kg
Ronnie Rancher	meat	potatoes	meat	potatoes
Autarky (E)	12 kg	8 kg	12 kg	8 kg
Trade (I)	24 kg	0 kg	12 kg	8 + <b>4</b> kg
	meat	potatoes	meat	potatoes
Total	24 kg	24 kg	20 + <b>4</b> kg	20 + <b>4</b> kg

#### Frankie's Net Gain from Trade: Diagram

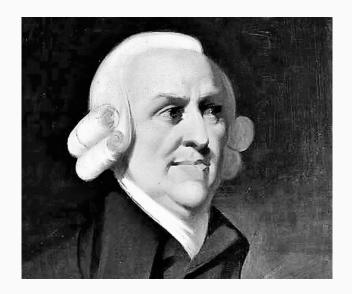


#### Ronnie's Net Gain from Trade: Diagram



# Absolute Advantage Theory

# Adam Smith (1723-1790)



# Adam Smith (1723-1790)

- Entered Glasgow University at the age of 14
- Received a scholarship for postgraduate study in Oxford but quit because he found the atmosphere intellectually stifling
- ★ Close friend of David Hume; acquaintance of Voltaire and Benjamin Franklin
- There is nobody in Germany to rival Adam Smith!

  Emmanuel Kant
- There is nobody in France who can even be compared to Adam Smith! Voltaire

#### **Adam Smith's Intellectual Opponents**

- The development of the economic theory of Adam Smith takes place in the context of his argument with two other schools of ideas about the origin of the wealth of nations
- The first, and older, school is that of the mercantilists
- The other is that of the **physiocrats**

#### The Mercantilists

- A nation is rich when it has a powerful army and can defend itself and conquer others
- A powerful army must be procured for by the Prince, and that requires money (gold and silver) to pay the soldiers
- The Prince has money when more gold and silver flow into the country than flow out, so that he can tax them

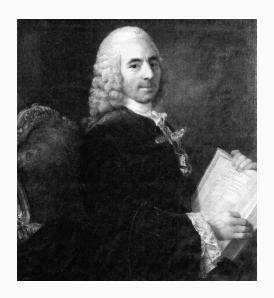
#### The Mercantilists

- More gold and silver flow into the economy than out when it maintains larger export than import
- So, according to mercantilists, it is the positive trade balance which is the source of the wealth of nations
- Major postulates of mercantilism remain politically popular today

#### A Modern Mercantilist



## Françios Quesney (1694-1774)



#### Françios Quesney (1694-1774)

- A French surgeon, doctor of medicine, and economist
- ★ Personal physician to Louis XV who used to call him his thinker
- His book *Tableau Economique* has been described by one of his followers as worthy of being ranked, along with writing and money, as one of the three great inventions of the human race
- The Tableau Economique's major conception of the "wealth of nations as an annual produce, annual distrubuted" have influenced profoundly Adam Smith and his magnum opus

#### The Physiocrats

- Wealth results from the fertility of the land. All value ultimately available to people is produced through the fruits of the land.
- All value beyond agriculture is simply a superstructure, simply added to the agricultural fundament, cities are parasitic.
- Emphasize productivity rather than the quantity produced.
- Attempt to measure the value produced and to trace the economic turnover

#### Adam Smith's Background and Insights

- Starts off as a moral philosopher, i.e. asks what is good and just between people
- Like the physiocrats stresses productivity wealthy are those who manage to produce much with the available resources
- Productivity depends on specialization the producers who specialize develop habits, knowledge and skills which make them more productive and importantly allow them to make productivity enhancing innovations
- Specialization requires exchange, so that each producer can concentrate (and become extremely good) in one main productive operation

#### Adam Smith's Background and Insights

- The type of exchange, which leads to the most adequate forms of specialization, is market exchange
- How much market exchange is possible, and from there how much specialization is achievable, depends on the size of the market
- In one sentence: the size of the market, through the possibilities for exchange and (mutually dependent and beneficial) specialization, determines the wealth of nations.

#### **Absolute Advantage**

## absolute advantage

the ability to produce a good using fewer inputs than another producer



Ronnie needs 30 minutes of labour to produce 1 kg of potatoes whereas Frankie only needs 20 minutes of labour to produce the same 1 kg of potatoes



specialization according to absolute advantage focuses on the cost in terms of resources expended for production and contradicts the basic principle of economics that the true cost of a decision/action is the opportunity cost; to have mutual benefit it is necessary for one producer to be more productive in one good, and the other producer in the other good

#### Adam Smith's Theory - Final Appraisal

- The analysis of the gains from trade is innovative, but limited
- The major limitation is the requirement for each participant to have an absolute advantage in the production of at least one good to be able to participate in the mutually beneficial exchange
- This requirement means that the circle of people capable of participating in mutually beneficial exchange is smaller and the opportunities for wealth accumulation are constrained

# Comparative Advantage

#### Why People Trade

The right way to make decisions in practical life is based on your opportunity cost.

Charles Munger

Frankie Farmer Ronnie Rancher a farmer who can produce both meat and potatoes

a rancher who can produce both meat and potatoes

faster than Frankie



Can both Ronnie and Frankie gain by trading with each other? If *yes*, who should specialize in producing meat and who should specialize in potatoes?

	Time to make 1 kg		Productio	n per hour
	meat	potatoes	meat	potatoes
Frankie Farmer	60 min	15 min	?	?
Ronnie Rancher	20 min	10 min	?	?

	Time to make 1 kg		Production	on per hour
	meat	potatoes	meat	potatoes
Frankie Farmer	60 min	15 min	1 kg	4 kg
Ronnie Rancher	20 min	10 min	3 kg	6 kg

	Time to make 1 kg		Productio	n per hour
	meat	potatoes	meat	potatoes
Frankie Farmer	60 min	15 min	1 kg	4 kg
Ronnie Rancher	20 min	10 min	3 kg	6 kg

	Production per hour		Production	n in 8 hours
	meat	potatoes	meat	potatoes
Frankie Farmer	1 kg	4 kg	?	?
Ronnie Rancher	3 kg	6 kg	?	?

	Time to make 1 kg		Productio	n per hour
	meat	potatoes	meat	potatoes
Frankie Farmer	60 min	15 min	1 kg	4 kg
Ronnie Rancher	20 min	10 min	3 kg	6 kg

	Production per hour		Production	Production in 8 hours	
	meat	potatoes	meat	potatoes	
Frankie Farmer	1 kg	4 kg	8 kg	32 kg	
Ronnie Rancher	3 kg	6 kg	24 kg	48 kg	

## Frankie's Range of Choices

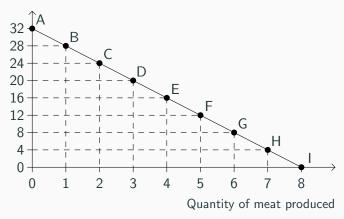
	Time spent		Proc	luction
Frankie Farmer	meat	potatoes	meat	potatoes
Α	0 hr	8 hr	?	?
В	1 hr	7 hr	?	?
С	2 hr	6 hr	?	?
D	3 hr	5 hr	?	?
E	4 hr	4 hr	?	?
F	5 hr	3 hr	?	?
G	6 hr	2 hr	?	?
Н	7 hr	1 hr	?	?
I	8 hr	0 hr	?	?

## Frankie's Range of Choices

	Time spent		Production	
Frankie Farmer	meat	potatoes	meat	potatoes
Α	0 hr	8 hr	0 kg	32 kg
В	1 hr	7 hr	1 kg	28 kg
С	2 hr	6 hr	2 kg	24 kg
D	3 hr	5 hr	3 kg	20 kg
E	4 hr	4 hr	4 kg	16 kg
F	5 hr	3 hr	5 kg	12 kg
G	6 hr	2 hr	6 kg	8 kg
Н	7 hr	1 hr	7 kg	4 kg
I	8 hr	0 hr	8 kg	0 kg

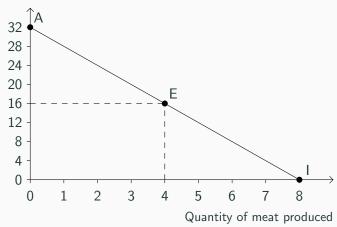
#### Frankie's Range of Choices: Diagram

Quantity of potatoes produced



#### Frankie's Range of Choices: Diagram





#### Ronnie's Range of Choices

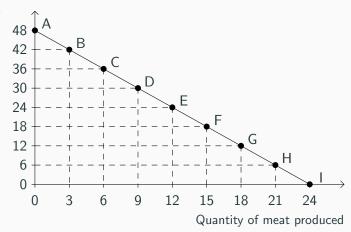
	Time spent		Proc	luction
Ronnie Rancher	meat	potatoes	meat	potatoes
Α	0 hr	8 hr	?	?
В	1 hr	7 hr	?	?
С	2 hr	6 hr	?	?
D	3 hr	5 hr	?	?
E	4 hr	4 hr	?	?
F	5 hr	3 hr	?	?
G	6 hr	2 hr	?	?
Н	7 hr	1 hr	?	?
I	8 hr	0 hr	?	?

#### Ronnie's Range of Choices

	Time spent		Prod	uction
Ronnie Rancher	meat	potatoes	meat	potatoes
Α	0 hr	8 hr	0 kg	48 kg
В	1 hr	7 hr	3 kg	42 kg
С	2 hr	6 hr	6 kg	36 kg
D	3 hr	5 hr	9 kg	30 kg
E	4 hr	4 hr	12 kg	24 kg
F	5 hr	3 hr	15 kg	18 kg
G	6 hr	2 hr	18 kg	12 kg
Н	7 hr	1 hr	21 kg	6 kg
1	8 hr	0 hr	24 kg	0 kg

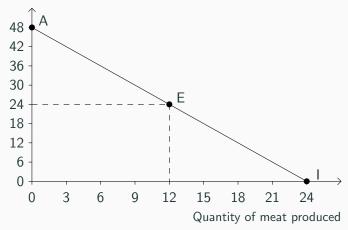
#### Ronnie's Range of Choices: Diagram

Quantity of potatoes produced



#### Ronnie's Range of Choices: Diagram





	Time spent		Prod	uction
Frankie Farmer	meat	potatoes	meat	potatoes
A	0 hr	8 hr	0 kg	32 kg
E	4 hr	4 hr	4 kg	16 kg
1	8 hr	0 hr	8 kg	0 kg
Ronnie Rancher	meat	potatoes	meat	potatoes
А	0 hr	8 hr	0 kg	48 kg
E	4 hr	4 hr	12 kg	24 kg
1	8 hr	0 hr	24 kg	0 kg
Total (E)	?	?	?	?

	Time spent		Produ	uction
Frankie Farmer	meat	potatoes	meat	potatoes
Α	0 hr	8 hr	0 kg	32 kg
E	4 hr	4 hr	4 kg	16 kg
I	8 hr	0 hr	8 kg	0 kg
Ronnie Rancher	meat	potatoes	meat	potatoes
Α	0 hr	8 hr	0 kg	48 kg
E	4 hr	4 hr	12 kg	24 kg
1	8 hr	0 hr	24 kg	0 kg
Total (E)	8 hr	8 hr	16 kg	40 kg

	Production		Consumption	
Frankie Farmer E	meat ————————————————————————————————————	potatoes 16 kg	meat 4 kg	potatoes 16 kg
Ronnie Rancher	meat	potatoes	meat	potatoes
E	12 kg	24 kg	12 kg	24 kg
	meat	potatoes	meat	potatoes
Total (autarky)	16 kg	40 kg	?	?

	Production		Consumption	
Frankie Farmer	meat	potatoes	meat	potatoes
E	4 kg	16 kg	4 kg	16 kg
Ronnie Rancher	meat	potatoes	meat	potatoes
E	12 kg	24 kg	12 kg	24 kg
	meat	potatoes	meat	potatoes
Total (autarky)	16 kg	40 kg	16 kg	40 kg

#### The Gains from Trade

	Time spent		Production	
Frankie Farmer	meat	potatoes	meat	potatoes
Trade (A)	0 hr	8 hr	0 kg	32 kg
Autarky (E)	4 hr	4 hr	4 kg	16 kg
Ronnie Rancher	meat	potatoes	meat	potatoes
Autarky (E)	4 hr	4 hr	12 kg	24 kg
Trade (G)	6 hr	2 hr	18 kg	12 kg
Total (trade)	?	?	?	?

#### The Gains from Trade

	Time spent		Production	
Frankie Farmer	meat	potatoes	meat	potatoes
Trade (A)	0 hr	8 hr	0 kg	32 kg
Autarky (E)	4 hr	4 hr	4 kg	16 kg
Ronnie Rancher	meat	potatoes	meat	potatoes
Autarky (E)	4 hr	4 hr	12 kg	24 kg
Trade (G)	6 hr	2 hr	18 kg	12 kg
Total (trade)	6 hr	10 hr	16 + <b>2</b> kg	40 + <b>4</b> kg

## Ronnie Trades 5 kg Meat for 15 kg Potatoes

	Production		Consumption	
Frankie Farmer	meat	potatoes	meat	potatoes
Autarky (E)	4 kg	16 kg	4 kg	16 kg
Trade (A)	0 kg	32 kg	?	?
Ronnie Rancher	meat	potatoes	meat	potatoes
Autarky (E)	12 kg	24 kg	12 kg	24 kg
Trade (G)	18 kg	12 kg	?	?
	meat	potatoes	meat	potatoes
Total	18 kg	44 kg	?	?

## Ronnie Trades 5 kg Meat for 15 kg Potatoes

	Production		Consumption	
Frankie Farmer	meat	potatoes	meat	potatoes
Autarky (E)	4 kg	16 kg	4 kg	16 kg
Trade (A)	0 kg	32 kg	4+1 kg	16 + 1 kg
Ronnie Rancher	meat	potatoes	meat	potatoes
Autarky (E)	12 kg	24 kg	12 kg	24 kg
Trade (G)	18 kg	12 kg	12 + 1 kg	24 + <b>3</b> kg
	meat	potatoes	meat	potatoes
Total	18 kg	44 kg	$\overline{16 + 2 \text{ kg}}$	40 + <b>4</b> kg

**Comparative Advantage Theory** 

## **David Ricardo (1772-1823)**



#### **David Ricardo (1772-1823)**

- One of 17 children of a successful Jewish stock broker
- Worked for his father since he was 14 but struck it out on his own when he was 21 because he was expelled by the family
- Retired at 1815 after becoming a millionaire
- Engaged with economics after reading Adam Smith's book
  The Wealth of Nations; published On the Principles of
  Political Economy and Taxation in 1817
- ★ Was a member of the British parliament where he opposed the protectionist Corn Laws

#### Samuelson and Ulam's Debate

STANISLAW ULAM: Name me one proposition in all of the social sciences which is both true and non-trivial.

PAUL SAMUELSON: That it [the Ricardian theory of comparative advantage] is logically true need not be argued before a mathematician; that it is not trivial is attested by the thousands of important and intelligent men who have never been able to grasp the doctrine for themselves or to believe it after it was explained to them.

#### **Comparative Advantage**

opportunity whatever must be given up to obtain some item
cost



Ronnie needs to give up 0.5 kg of meat to produce 1 kg of potatoes whereas Frankie only needs to give up 0.25 kg of meat to produce the same 1 kg of potatoes



using opportunity cost to determine specialization is in line with the basic principle of economics that the true cost of a decision/action is the opportunity cost

## **Comparative Advantage**

comparative the ability to produce a good at a lower opportunityadvantage cost than another producer



since Frankie has lower opportunity cost of potatoes (0.25 kg of meat) than Ronnie (0.5 kg of meat), Frankie has comparative advantage in the production of potatoes and should specialize in the production of potatoes



specialization according to absolute advantage is a special case of the more general theory of specialization according to comparative advantage; specialization according to comparative advantage minimizes opportunity costs in an economy (best of all possible, albeit imperfect, worlds)

#### Insights

- $\ensuremath{\mathbb{Q}}$  Gains from trade are realised when each party specialises according to comparative advantage
- Both parties will gain from trade **only** if the exchange rate is higher than the opportunity cost of the seller and lower than the opportunity cost of the buyer
- Opportunity cost is changing alongside the production possibility frontier, limiting the gains from specialisation
- Trusting that the conclusions above hold in the general (and much more realistic!) case of n goods and m producers requires either a "leap of faith" or a much more sophisticated mathematical treatment

#### **Evaluation of Ricardo's Theory**

It is, perhaps, a well founded objection to Mr. Ricardo, that he sometimes reasons upon abstract principles to which he gives too great a generalization.

JEAN-BAPTISTE SAY

- 4 Ignores transportation and transaction costs
- Overspecialization might be a threat to national security
- A static model (ignores learning/technology development)
- Opportunity cost (mutually-beneficial exchange rate) is difficult to determine in practice

The Exchange Rate and the

**Distribution of Gains** 

### Ronnie Trades 5 kg Meat for 14 kg Potatoes

	Production		Consumption	
Frankie Farmer	meat	potatoes	meat	potatoes
Autarky (E)	4 kg	16 kg	4 kg	16 kg
Trade (A)	0 kg	32 kg	?	?
Ronnie Rancher	meat	potatoes	meat	potatoes
Autarky (E)	12 kg	24 kg	12 kg	24 kg
Trade (G)	18 kg	12 kg	?	?
	meat	potatoes	meat	potatoes
Total	18 kg	44 kg	?	?

# Ronnie Trades 5 kg Meat for 14 kg Potatoes

	Production		Consumption	
Frankie Farmer	meat	potatoes	meat	potatoes
Autarky (E) Trade (A)	4 kg 0 kg	16 kg 32 kg	4 kg 4 + <b>1</b> kg	16 kg 16 + <b>2</b> kg
Ronnie Rancher	meat	potatoes	meat	potatoes
Autarky (E) Trade (G)	12 kg 18 kg	24 kg 12 kg	12 kg 12 + <b>1</b> kg	24 kg 24 + <b>2</b> kg
	meat ————————————————————————————————————	potatoes  44 kg	$\frac{meat}{16 + 2  kg}$	$\frac{\text{potatoes}}{40 + 4 \text{ kg}}$

#### Ronnie Trades 10 kg Meat for 10 kg Potatoes

	Production		Consumption	
Frankie Farmer	meat	potatoes	meat	potatoes
Autarky (E)	4 kg	16 kg	4 kg	16 kg
Trade (A)	0 kg	32 kg	?	?
Ronnie Rancher	meat	potatoes	meat	potatoes
Autarky (E)	12 kg	24 kg	12 kg	24 kg
Trade (G)	18 kg	12 kg	?	?
	meat	potatoes	meat	potatoes
Total	18 kg	44 kg	?	?

#### Ronnie Trades 10 kg Meat for 10 kg Potatoes

	Production		Consumption	
Frankie Farmer	meat	potatoes	meat	potatoes
Autarky (E) Trade (A)	4 kg 0 kg	16 kg 32 kg	4 kg 4 + <b>6</b> kg	16 kg 16 + <b>6</b> kg
Ronnie Rancher	meat	potatoes	meat	potatoes
Autarky (E) Trade (G)	12 kg 18 kg	24 kg 12 kg	12 kg 12 - <b>4</b> kg	24 kg 24 - <b>2</b> kg
 Total	meat ————————————————————————————————————	potatoes 44 kg	$\frac{meat}{16 + 2 \; kg}$	$\frac{\text{potatoes}}{40 + 4 \text{ kg}}$

### Ronnie Trades 4 kg Meat for 20 kg Potatoes

	Production		Consumption	
Frankie Farmer	meat	potatoes	meat	potatoes
Autarky (E)	4 kg	16 kg	4 kg	16 kg
Trade (A)	0 kg	32 kg	?	?
Ronnie Rancher	meat	potatoes	meat	potatoes
Autarky (E)	12 kg	24 kg	12 kg	24 kg
Trade (G)	18 kg	12 kg	?	?
	meat	potatoes	meat	potatoes
Total	18 kg	44 kg	?	?

# Ronnie Trades 4 kg Meat for 20 kg Potatoes

	Production		Consumption	
Frankie Farmer	meat	potatoes	meat	potatoes
Autarky (E) Trade (A)	4 kg 0 kg	16 kg 32 kg	4 kg 4 + <b>0</b> kg	16 kg 16 - <b>4</b> kg
Ronnie Rancher	meat	potatoes	meat	potatoes
Autarky (E) Trade (G)	12 kg 18 kg	24 kg 12 kg	12 kg 12 + <b>2</b> kg	24 kg 24 + <b>8</b> kg
	meat	potatoes	meat	potatoes
Total	18 kg	44 kg	16 + <b>2</b> kg	40 + <b>4</b> kg

#### Applications of the Theory of Comparative Advantage

My father couldn't run a lawn-mower...
I never saw him cut the grass, trim a hedge,
or wash a car.

HOWARD BUFFETT

- **?** Should Warren Buffet cook his own dinner?
- **?** Should Jeff Bezos deliver Amazon's packages?
- ? Should the UK leave the EU?

#### **Reputation for Delegation**

Charlie Rose: Warren, you have reputation for delegation.

WARREN BUFFETT: Abdication actually.

#### **Last Words**

Ultimately, the economic analysis of the possibilities for mutually beneficial exchange and enrichment based on specialization according to the comparative advantages of market participants leads to one main conclusion – the diversity of people, their differences, their particularities and even oddities, are actually opportunities for enrichment

GEORGY GANEV

#### **Last Words**

The conclusion about the diversity and differences among humans as an opportunity rather than a danger for human societies is another major distinction of economics from other social sciences

GEORGY GANEV

# Thank you!