Chpt2 Theory of Comparative Advantage

- Mercantilism
- Theory of absolute advantage
- Theory of comparative advantage
- Expansion of comparative advantage theory

Questions should be solved

- We will learn the economic forces that determine what that trade looks like:
  - what products are traded
  - who trades them
  - at what quantities and prices they are traded
  - what the benefits and costs of trade are.

- 贸易所得(the gains from trade)
- 贸易模式(the pattern of trade)

2.1 Mercantilism:Older than Smith

- **The Earliest theory of protection**
- 重商主义是对**16-18**世纪出现在欧洲的一种经济思想的统称。其中，该思想揭示了贸易保护的必要性，是最早的贸易保护理论。

- 通常将重商主义分为两个阶段：早期重商主义（重金主义、货币差额论、货币平衡论）和晚期重商主义（重工主义 、贸易差额论、贸易平衡论）。
- **Earlier Mercantilism:Bullionism**
- **Later Mercantilism:**

Basic Idea

- National wealth was based on national holdings of gold and silver.
- Export is good and import is bad
- Government positively regulate trade
- Develop entrepot trade
- Loans on favourable terms to industry
- Focus on technology training

1、 Earlier Mercantilism: Bullionism

- National wealth is Gold and silver (G&S)
- Foreign trade is critical for creating national wealth
- Strict constraints on exporting of G&S, also on foreign trade

2、 Later Mercantilism

Trade surplus as a whole but partial deficit is permitted;

Develop entrepot trade；

Favorable terms to industry and focus on technical training

- ***Evaluation on Mercantilism***

- **View trade as a zero-sum activity**
- **David Hume's Criticism**

Alive Today

Neo-mercantilism believe export is good and import is bad, but now it has a sharp focus on employment

2.2Adam Smith's Theory of Absolute Advantage

"各自拥有某种技艺的工匠都具备其他工匠所没有的优势，它们都认为互相交换彼此的产品比自己制造更为有利一样 "

——亚当•斯密：《国民财富的性质与原因的研究》

Adam Smith "Wealth of Nations"

Description of Theory

1、自由贸易的出发点

“对外贸易无论在什么地方进行，它们都有两个明显的利益：动员了闲散、剩余、国内没有需求的土地和劳动力资源，并使这些资源获得比它们所要求的更大收益”。所以，“无论什么时候，也无论在哪个国家，无论是原料生产，还是制成品生产，剩余的产品，或者是在国内没有需求的产品，的确都必须向外国出口，以换取国内需要的某些产品”

——亚当•斯密：《国民财富的性质与原因的研究》

- 出发点就是自由贸易能够动员社会的闲散资源，增加生产和出口，使社会的各类经济资源都能借对外贸易之功，寻找到更为广阔的市场，从而得到最佳的充分利用。这样，对外贸易就能够使国内的经济活动更为活跃，国内的经济发展水平亦随之提高，起到了推动经济发展的作用 。

2、“发挥优势，扬长避短”

“如果一件物品在购买时所付出的代价小于在家内生产时的花费，就永远不会想要在家内生产，这是每一个精明的家长都知道的格言”。正是在这样一句众所周知的格言的指导下，“裁缝不自己制鞋，而是向鞋匠买鞋；鞋匠不自己缝衣，而是请裁缝替他缝衣服；农夫自己既不制鞋，又不缝衣服，而是宁愿请鞋匠和裁缝帮他制鞋缝衣。他们都感到，为了自身的利益，应当把他们的全部精力集中使用到较其邻居处于某种更为有利的方面，而以自己生产的产品的一部分价格，去购买他们所需要的任何其他物品”。（接下页）

可见裁缝、鞋匠、农夫一众人等，皆为精明的手艺人，他们完全懂得如何“发挥优势、扬长避短”的道理。由此推而广之，“每一私人家庭行为中的精明之举，在一个大国的行为中绝少是荒唐的。如果外国能以比我们自己制造还要便宜的商品供应我们，最好就用我们享有某些优势的产业生产出来的物品的一部分向他们购买”

3、何谓“优势”

1）自然优势（**Natural Advantages**）：一国固有的天赋优势，如一国所处的地理位置、自然环境、土壤质量、气候条件或矿产资源。

“有时，在某些特定产品生产上，某一国占有那么大的自然优势，以致全世界都认为，跟这种优势抗衡是枉然的”

2）获得性优势（**Acquired Advantages**）：为后天获得的优势，如教育、训练和实践等之后的结果。

“拥有一种技艺的工匠同拥有另一种技艺的工匠相比的优势，只是后来获得的”

“只要一国具有这种优势，而另一国无此优势，对于后者来说，向前者购买总比自己生产要有利得多”

每一个国家都应集中致力于生产其最擅长生产的物品，而所谓擅长与否则全然取决于在各自拥有的优势基础上生产成本的绝对差异。生产成本绝对低于他国谓之“最擅长”，否则即为“最不擅长”。

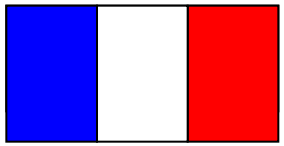
- ***Measurement for absolute advantage***
  - **Labor Productivity:the number of units of output that a worker can produce in one hour.**

$$\left(\frac{Q_j}{L}\right)$$

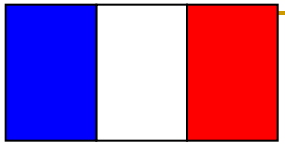
  - **The number of hours it takes a worker to produce one unit of output.is the reciprocal of labor productivity.**

$$a_{Lj} = \frac{L}{Q_j}$$

An analysis example

	Food	Clothes
	**10**	**15**
	**20**	**5**

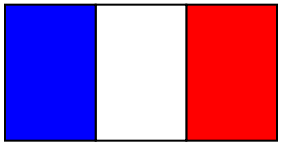
Labor input per unit



absolute advantage on food

absolute advantage on clothes

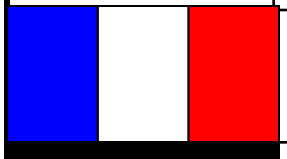
Opportunity cost in different countries：



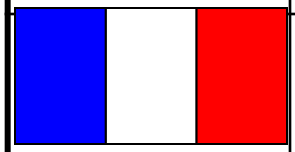
+1 unit food＝-2/3 unit clothes
+1 unit clothes＝-3/2 unit food

+1 unit food ＝-4 unit clothes
+1 unit clothes ＝-1/4 unit food

Suppose labor supply 100, production combination by chance

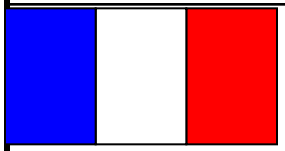
	F	C
	4	4
	3	8

Division of labor:France specialized in food and Germany in clothes

	F	C
	10	0
	0	20

1 unit food =1 unit clothes on the world market(?)

Production combination maybe like :

	F	C
	6	4
	4	16

Time Saving

- **What if a country has no absolute advantage?**
- **What if foreigners are better at producing everything than we are?**
- **Will they want to trade?**
- **Should we want to?**
- **Whether exists trade benefits**?
- **Free or not?**

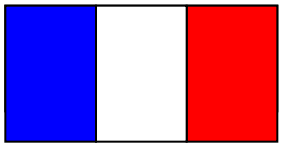
2.3 Ricardo's Theory of Comparative Advantage

Basic Idea: Greatest relative advantage (or least relative disadvantage)

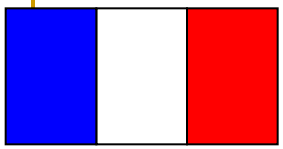
依然采用了由个人行为推及国家经济行为的方法，举例说，“如果两个人都生产鞋和帽子，其中一人在两种商品的生产上都比另一个人具有优势，不过在帽子生产上只领先于其竞争对手1/5或20%，而在鞋的生产上却要领先于其竞争对手1/3或33%；那么，这个具有优势的人专门生产鞋，而那个处于劣势的人专门生产帽子，难道不是对于他们双方都有利吗？

基于各种原因，每一个国家都可能有“某种具有优势的产品”，而且“这种优势还相当可观”，那么，“各国都更为合理地分配它的劳动资源，生产这种具有优势的产品”，并“将其用于相互交换，各国就都能得到更多的利益”。

“Four Magic Numbers”

	Food	Clothes
	**10**	**5**
	**20**	**15**

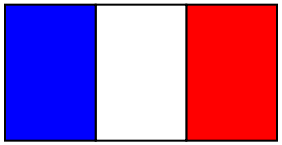
Labor input per unit of goods



both have advantages

both have disadvantages

Opportunity cost:



+1 unit food＝-2 unit clothes

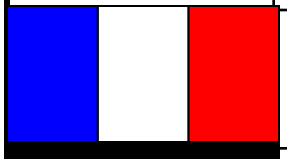
+1 unit clothes ＝-1/2 unit food

+1 unit food ＝-4/3 unit clothes

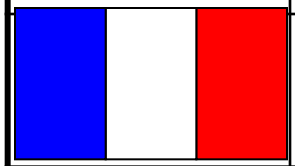
+1 unit clothes ＝－3/4 unit food

Germany has comparative advantage on produing food

Suppose labor supply 100, production combination by chance：

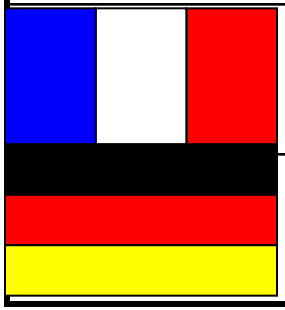
	F	C
	3	14
	2	4

Based on CA,Germany specialized in food and France in clothes

	F	C
	0	20
	5	0

1 unit food =5/3 unit clothes on the world market(?)

Production combination maybe like

	F	C
	3	15
	2	5

All production involves an *opportunity cost.*
***Only if there is difference or* different <u>autarky</u> prices, there is possibility to trade with others.**

- *Suppose no trade at all:*

Domestic exchange ratio is France

1 unit F =2 unit C

1 unit C =1/2 unit F

Domestic exchange ratio is Germany

1 unit F =4/3 unit C

1 unit C =3/4 unit F

But note that:

- France willing to **buy** **+1 unit of food** for **up to** **2 unit clothes**.

  Germany is willing to **sell** **+1 unit of food** for **at least** **4/3 unit of clothes**.

- Germany is willing to **buy** **+1 unit of clothes** for **up to** **¾ unit of food**.

  France is willing to **sell** **+1 unit of clothes** for **at least** **½ unit of food**.

Measurement of Comparative Advantage

（1）comparative labor productivity:

$$\text{comparative labor productivity of product A} = \frac{\text{labor productivity of product A } (Q_A/L)}{\text{productivity of product B } (Q_B/L)}$$

(2) comparative cost:

$$\text{comparative cost of A} = \frac{\text{labor inputs per unit of A}\ (a_{LA})}{\text{labor inputs per unit of B}\ (a_{LB})}$$

(3) opportunity cost :

$$\text{opportunity cost of A} = \frac{\text{reduction of } Q_B}{\text{increase in } Q_A}$$

2.3.2 Model

- **Assumption**
- **Gains from trade**
  - ✓ **General Equilibrium Analysis**
  - ✓ **Partial Equilibrium Analysis**

Ricardo focused on labor productivity (or resource productivity more generally) for different products in different countries.

Comparative advantage:

- A country will export products that it can produce at a low opportunity cost (in terms of other goods that could be produced within the country).
- A country will import products that it would otherwise produce at a high opportunity cost.

Basis for trade:

Relative differences in labor (resource) productivity.

Assumption：

- 2*2
- Only one factor to input
- Technical difference
- Given supply of labor.Labor transfer among sectors in domestic, but can’t flow internationaly.
- Competitive market.
- Constant returns to scale.
- No transportation cost and trade barriers.
- Trade balance.

Indifference Curves

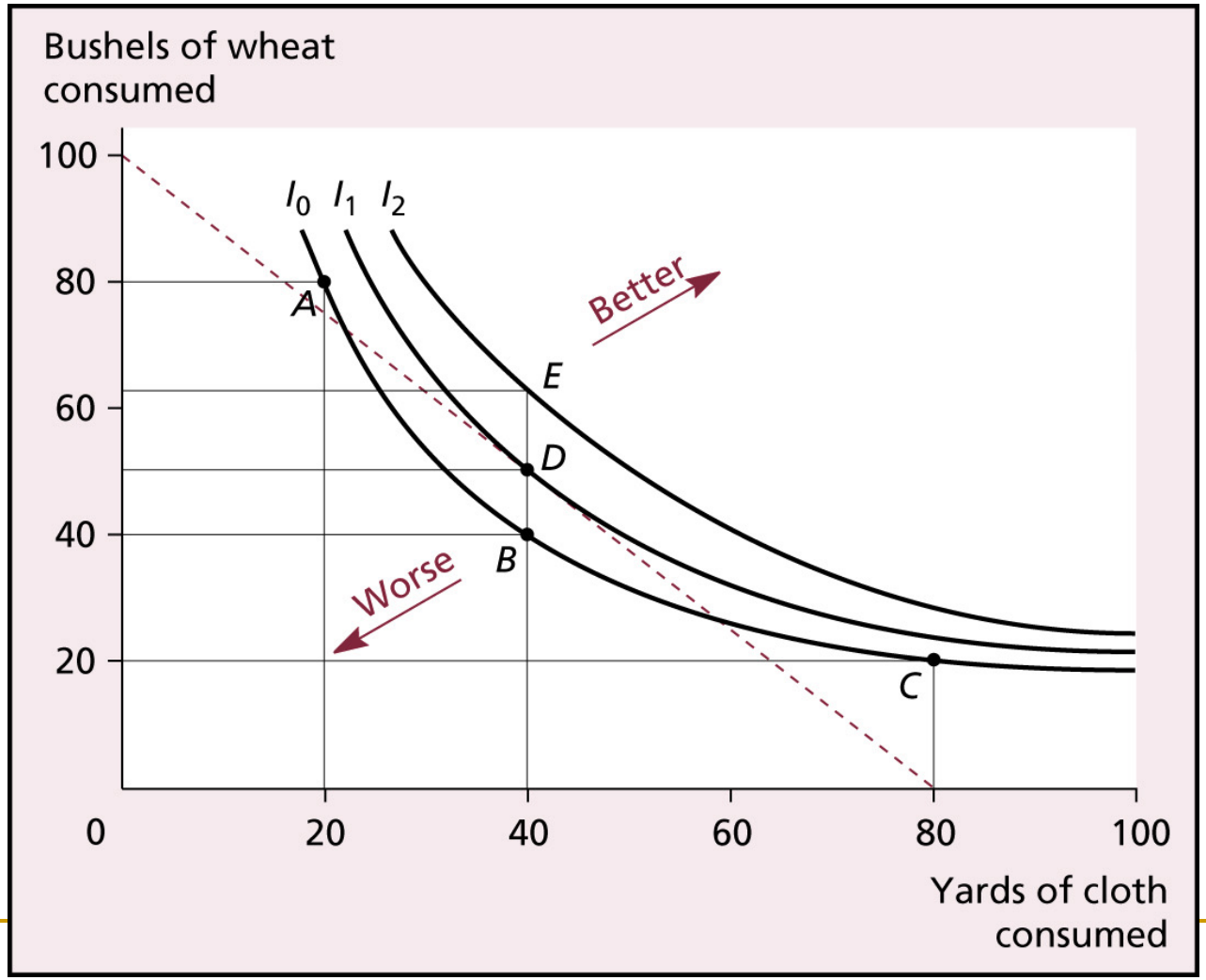
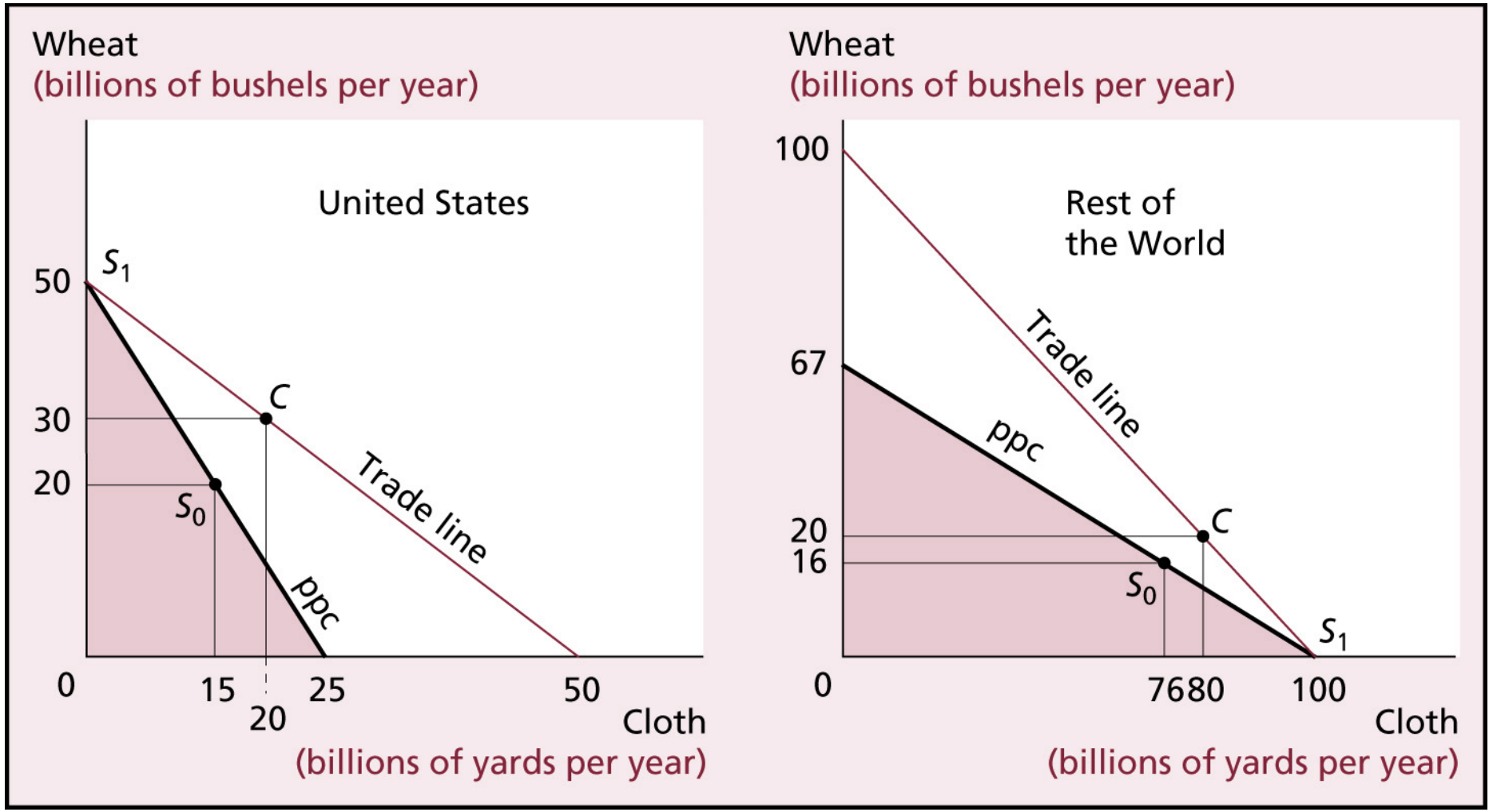
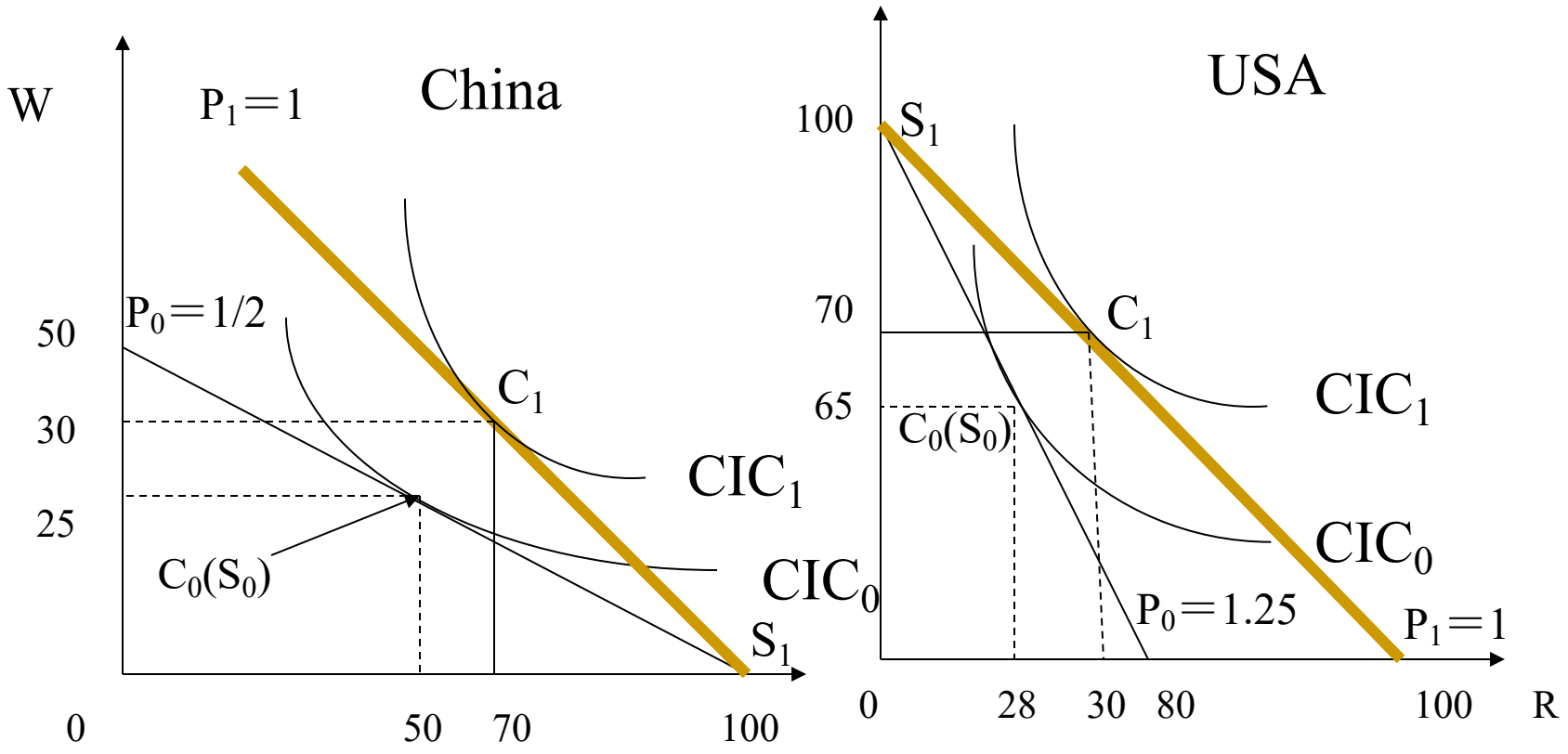
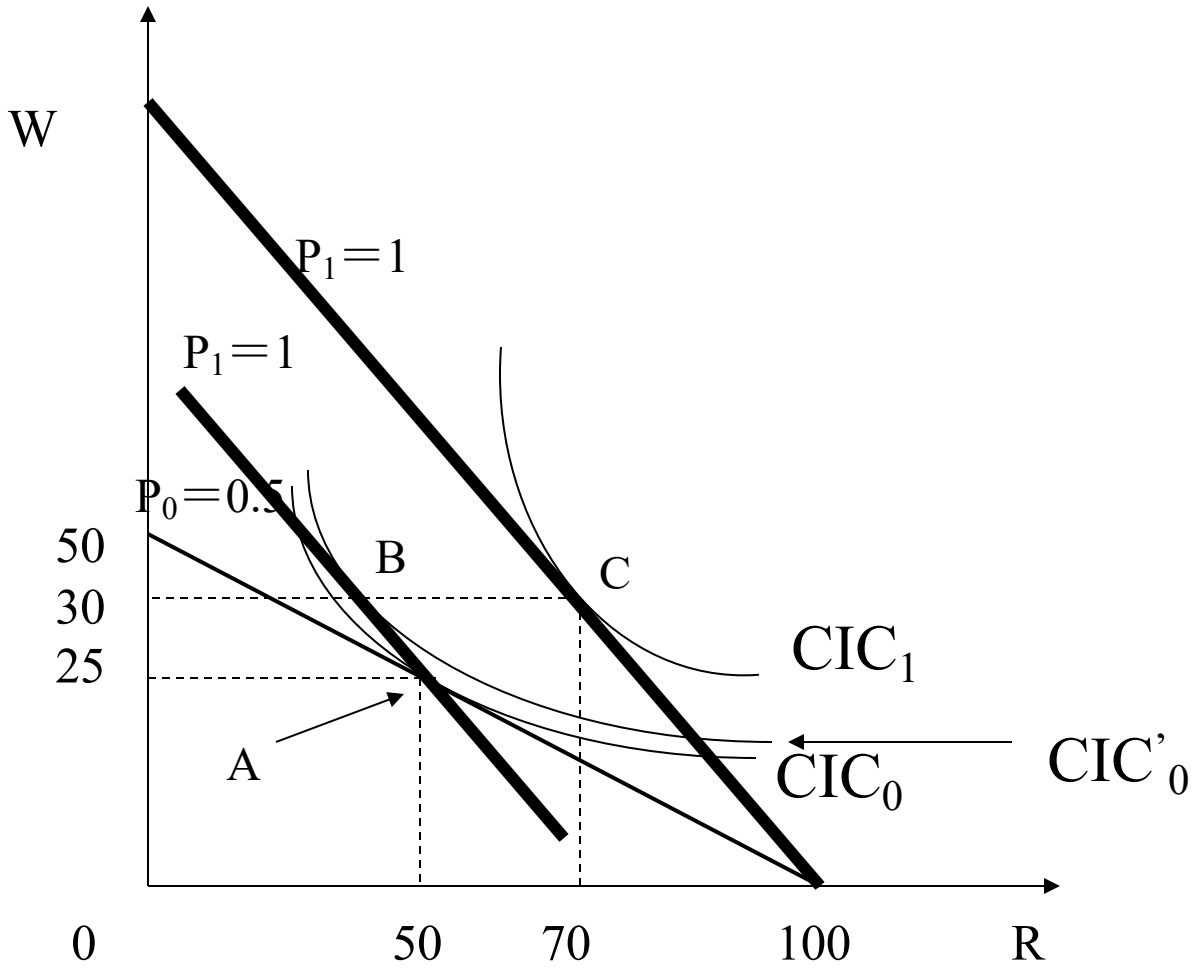


Figure 3.1
Gains from Trade: Ricardo's Case




W
China
$P_1=1$
$P_0=1/2$
50
30
25
C_1
CIC_1
CIC_0
$C_0(S_0)$
S_1
0
50
70
100
USA
100
S_1
70
C_1
65
$C_0(S_0)$
CIC_1
CIC_0
$P_0=1.25$
$P_1=1$
0
28
30
80
100
R

Gain from Specialization $ Gain from Exchange



Summary

- The relative price of the exported product will increase.(The relative price of the imported product will decrease)
- Completely specialization in a specific product.
- All better-off in both of the countries. Gains from trade seperately come from “gains from exchange” and “gains from specialization”.

Question 2:

加拿大生产1单位计算机和1单位小麦所需的劳动时间分别是60小时和3小时,中国相应地是100小时和4小时。假定生产计算机和小麦都只用劳动，加拿大的总劳动为600小时，中国总劳动为800小时。

- ✓ 计算不发生贸易时各国生产计算机的机会成本。
- ✓ 哪个国家具有生产计算机的比较优势？哪个国家具有生产小麦的比较优势？
- ✓ 如果给定世界价格是1单位计算机交换22单位的小麦，加拿大参 与贸易可以从每单位的进口中节省多少劳动时间？中国可以从每单位进口中节省多少劳动时间？如果给定世界价格是1单位计算机交换24单位的小麦，加拿大和中国分别可以从进口每单位的货物中节省多少劳动时间？

2.4 Expansion of comparative advantage theory

- **N*2*1 Model**

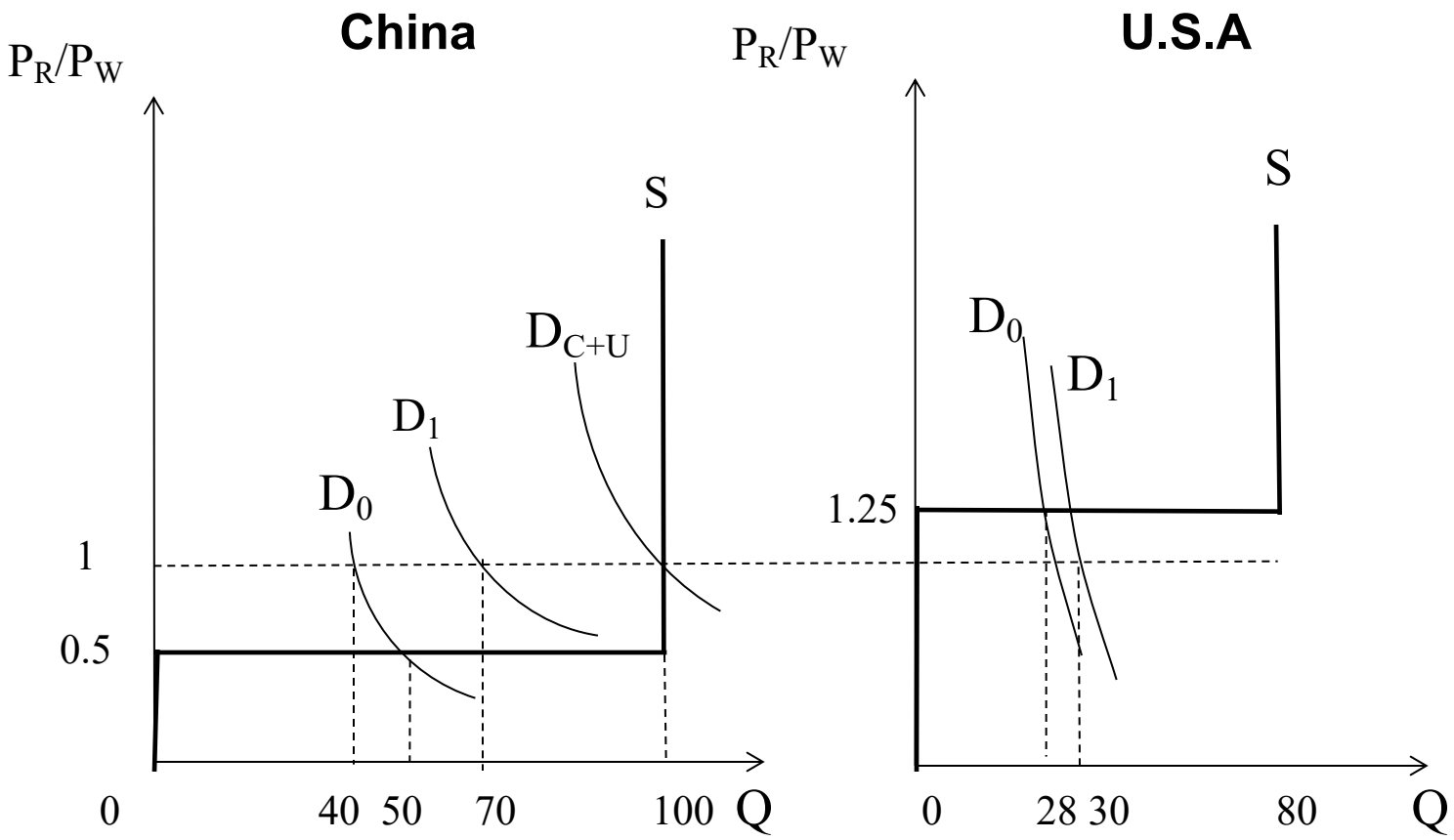
  Arrange each country based on relative production cost of rice from the lowest to the highest

$$\left(\frac{a_{LR}}{a_{LW_1}}\right) < \left(\frac{a_{LR}}{a_{LW_2}}\right) < \cdots < \left(\frac{a_{LR}}{a_{LW_N}}\right)$$

- What should the country import or export depends on the relative price of rice on the world market

$$\left(\frac{P_R}{P_W}\right)$$

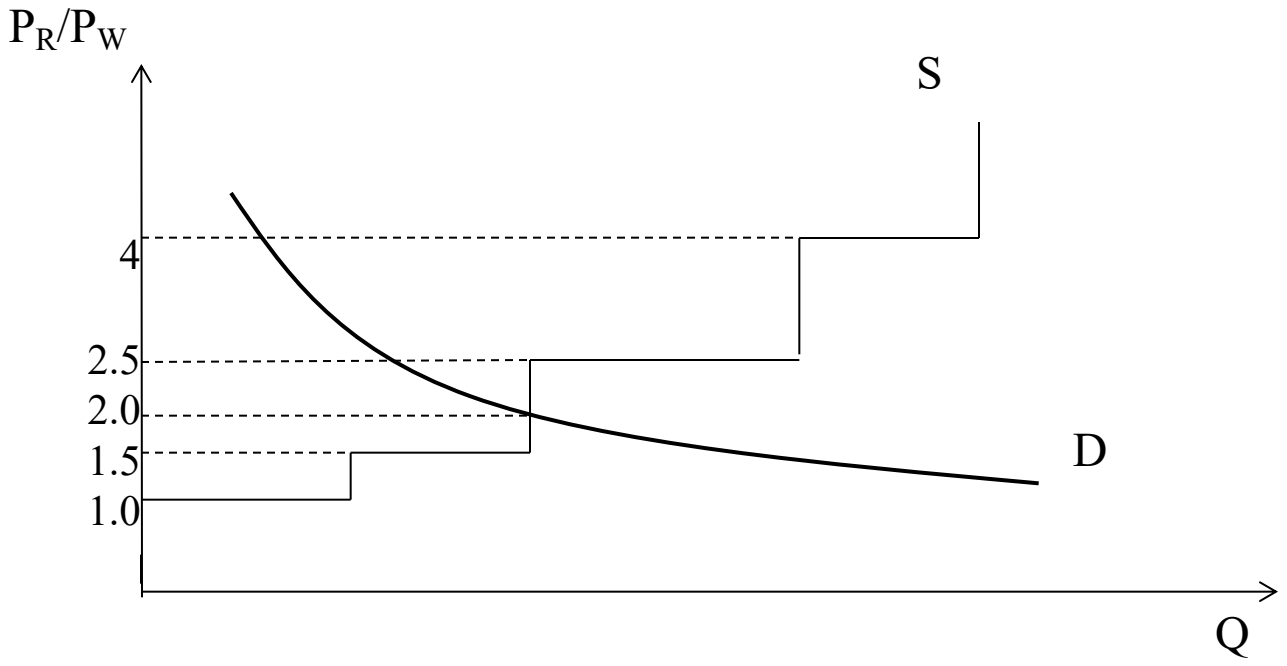
Rice Market in Two Countries



Example:

Labor input of each unit of product in different countries and comparative cost

country	Labor input per unit		Relative cost of Rice a_{LR}/a_{LW}
	Rice(a_{LR})	Wheat(a_{LW})	
U.S.A	**2**	**0.5**	**4.0**
France	**5**	**2**	**2.5**
China	**9**	**6**	**1.5**
Thailand	**8**	**8**	**1.0**


P_R/P_W
S
4
2.5
2.0
1.5
1.0
D
Q

2*M*1 Model

Arrange each product based on relative labor productivity from the lowest to the highest：

$$\frac{a_{L1}^{*}}{\alpha_{L1}} > \frac{a_{L2}^{*}}{\alpha_{L2}} > \cdots\cdots > \frac{a_{LM}^{*}}{\alpha_{LM}}$$

Compare the comparative labor productivity with relative wages between different countries

$$w\alpha_{Lj} < w^{*}\alpha_{Lj}^{*} \qquad \frac{a_{Lj}^{*}}{\alpha_{Lj}} > \frac{w}{w^{*}}$$

Labor input and relative cost

Product	Labor input per unit		Comparative labor productivity
	China（α_{Lj}）	U.S.A（α^*_{Lj}）	
Rice	10	10	1.0
Wheat	10	5	0.5
Cotton	20	4	0.2
Steel	20	2	0.1

Note:the comparative labor productivity not refer to different product but to different country.

右表给出了4个国家生产1单位大米和小麦的劳动投入量。

- 已知国际市场均衡的大米相对价格为2，则按照比较优势的原则，各国的贸易模式如何？当国际市场对大米需求增加导致大米的相对价格上升至3.5，各国贸易模式会受到影响吗？如果有，怎样变化？

	美国	法国	中国	泰国
大米	2	5	9	8
小麦	0.5	2	3	6

- 两个国家多种产品的情况。下表给出了两国生产四种产品所需的单位劳动时间。
- 如果美国工资是$10/小时，菲律宾的工资水平是$3/小时，两国发生贸易，按照比较优势的原则，各应生产和出口什么产品？如果美国的工资上升为$11/小时，贸易模式会受影响吗？

	芯片	香蕉	单放机	汽车
美国	25	5	10	50
菲律宾	100	1	20	250