

# David Ricardo

1772-1823



# David Ricardo

- Biography
  - Son of a Jewish immigrant stockbroker
  - 3rd of 17 children
  - Read WoN in 1799
  - Encouraged by James Mill
  - *On the Principles of Political Economy and Taxation* 1817
  - Member of Parliament 1819-1823
- Ricardian System differs from Smith's in method and analysis
- Deductive method—"strong case"
- Importance of diminishing returns in agriculture

# The Ricardian System

- Labour theory of exchange value (relative prices)
- Theory of rent and diminishing returns in agriculture
- Theory of wages and Malthusian population theory
- These three combined in the “Corn Model” of the growth process
- Related themes--international trade, machinery, taxation and banking policy

# Exchange

- Exchange value
  - Utility is necessary for exchange value but does not determine it
  - Water diamond paradox
  - For items in fixed supply exchange value depends on scarcity
  - For reproducible items exchange value depends on relative labour inputs
  - Capital inputs treated as “indirect labour” inputs
  - Only labour and capital inputs included, not land

# Labour theory of exchange value

- Labour theory of exchange value—depends on relative quantities of direct and indirect labour
- Translate this into money terms: relative labour and capital costs (wages and profits)
- Rent is price determined not price determining
- Problem of different labour to capital ratios—if these differ relative prices can be affected by changes in wage rates even if the quantities of labour and capital used remain the same

# Problems with the Labour Theory

- Example:
  - Good A produced by direct labour alone, good B produced using both labour and capital
  - Good A: \$1,000 wages, profit 10% on total capital (including wage fund), price = \$1,100
  - Good B: \$500 wages and \$500 capital, profit 10% on total capital, price = \$1,100
  - $P_a/P_b = 1/1$
  - But if the wage rate rises the price of A will have to rise relative to B to maintain equality in profit rates

# Problems with the Labour Theory

- Similar problems arise if there are two types of labour and wage differentials change, or if different capitals have different durability or rates of turnover
- Ricardo assumed that these factors would have only small effects on relative prices  $< 7\%$  (93% labour theory of value)
- In his analysis changes in relative prices are assumed to be due *only* to changes in real production costs (quantities of labour and capital) and not to changes in input prices

# Measures of Value

- Smith had argued that labour commanded was an invariable measure of value
- Ricardo argued that there was no invariable measure
- For analytical purposes Ricardo assumes that gold can act as an invariable measure
- Changes in price (in gold terms) can be due only to changes in quantities of inputs required (changes in real cost)

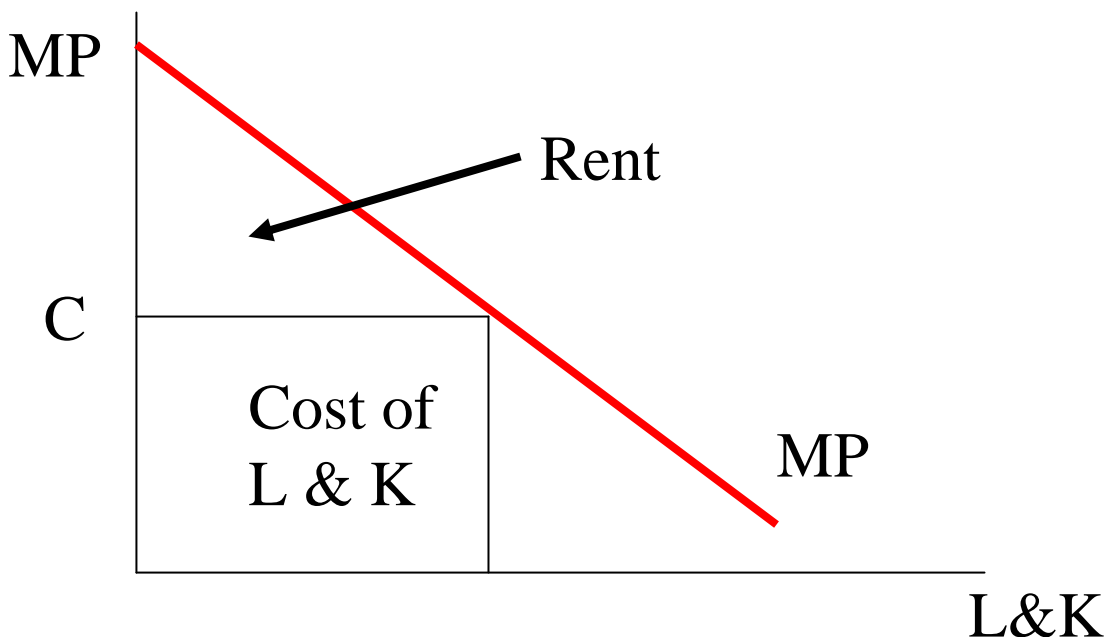


# Rent and Diminishing Returns

- Rent is price determined
- Rent is a return to the “original and indestructible powers of the soil” and depends on fertility
- Investment to improve land yield profit not rent
- To increase output from land have to either
  - Use existing land more intensively (the intensive margin)
  - Move to land of lesser quality (the extensive margin)
- Have diminishing returns on both margins

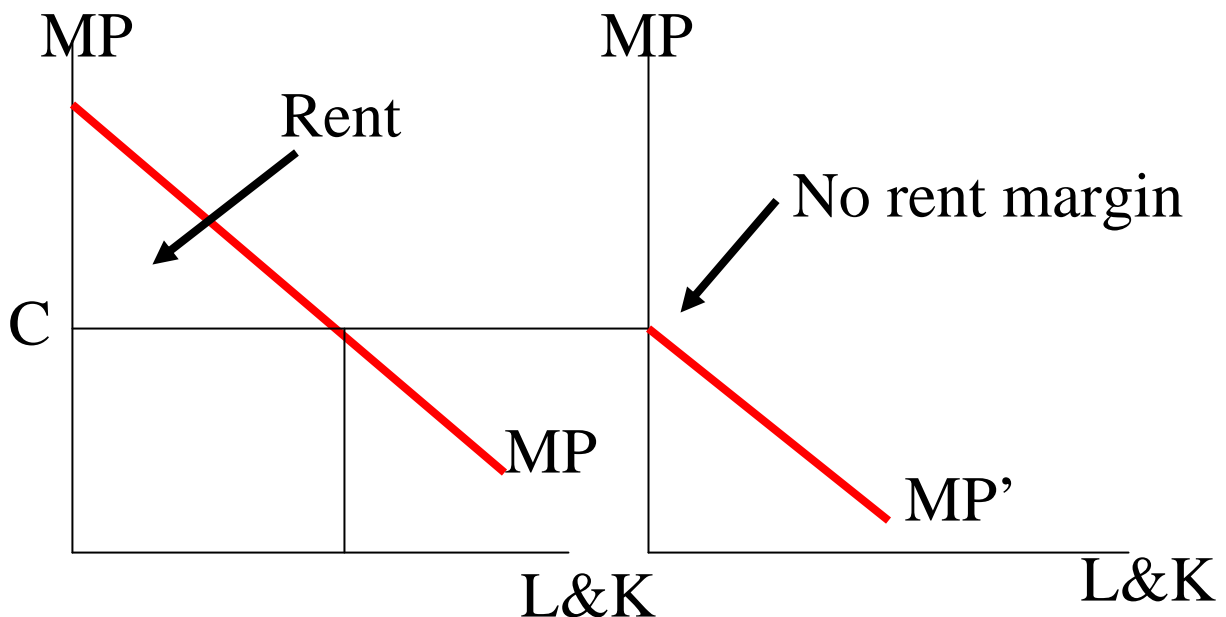
# Rent and Diminishing Returns

- As more labour and capital is added to a given quantity of land of given fertility marginal product must fall
- Labour and capital will be applied only to that point where the marginal product equals the real cost of the variable inputs (intensive margin)



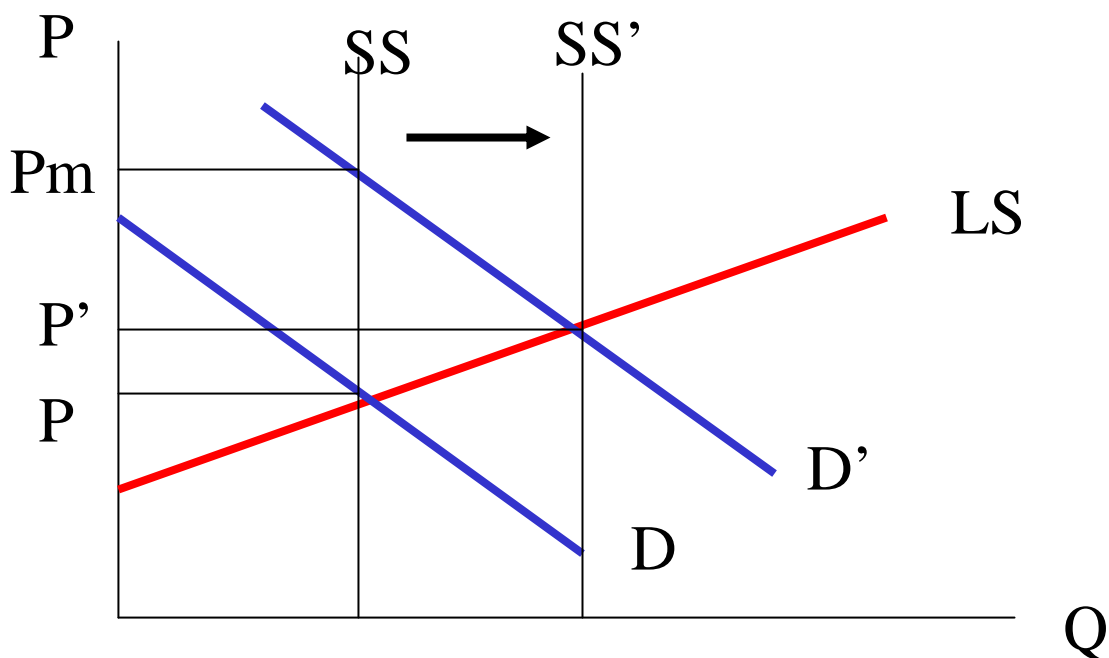
# Rent and Diminishing Returns

- Price of corn must just cover cost of production (wages and profits) on the least fertile land in use
- Least fertile land yields no rent (extensive margin)
- More fertile land will yield a rent



# Prices and Markets

- For manufactured goods, similar treatment to Smith (constant costs) but with more emphasis on capital mobility
- For agricultural goods—diminishing returns means an upward sloping long run supply curve



# Wages

- Supply of labour—Malthusian population theory
- Demand for labour—wage fund theory
- Wages can only remain above subsistence with high rates of capital accumulation (high profit rates)
- Subsistence wage is given in real terms and is a customary standard
- Long run trend of wages to subsistence level
- Ricardo opposed to poor laws

# Profits

- With capital accumulation profits will eventually fall
- But not for the reasons given by Smith:
  - Real wage at subsistence in long run (real wages do not rise)
  - Increased capitals will not reduce profits due to Say's law
- Profit eventually falls due to diminishing returns in agriculture increasing the relative cost of the subsistence wage good bundle

# Corn Model

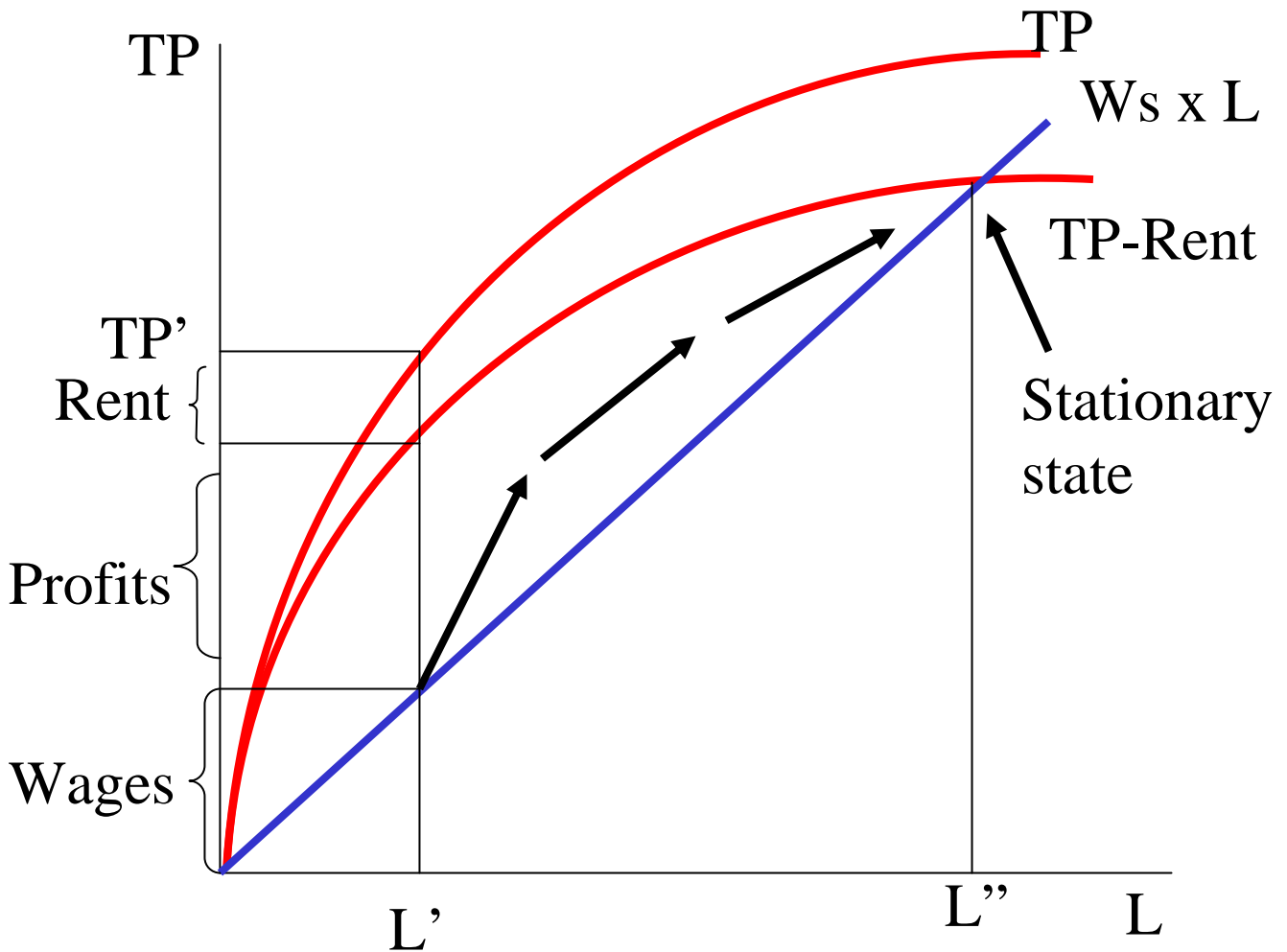
- Relative prices determined by relative labor and capital inputs
- Diminishing returns to agriculture means that agricultural output can only be expanded at increased cost
- With capital accumulation into the wage fund wages rise above subsistence
- Population grows for as long as the wage  $>$  subsistence
- Demand for food grows but supply can only be increased at increased cost

# Corn Model

- Relative price of agricultural outputs go up (relative to everything else)
- Subsistence wage largely agricultural goods (food)
- Cost of the subsistence wage rises in terms of everything else
- Profits have to fall
- This continues until profits too low for any further accumulation of capital
- Stationary state



# Corn Model



At  $L'$  profits are high. Capital accumulation occurs and the wage fund grows, raising wages above  $W_s$ . Population grows gradually pushing wages back toward  $W_s$ . But real cost of  $W_s$  rises due to diminishing returns and profits are squeezed out.

# Corn Model

- In the progressive state there is capital accumulation and wages  $>$  subsistence
- But in the long run the economy tends to a stationary state
- Capital accumulation ceases because profits fall until they just cover the capitalist's own consumption—no more capital accumulation
- Profits have been squeezed because real wages cannot go below subsistence in the long run and the relative cost of the subsistence wage bundle has gone up
- Rents are high

# Free Trade and the Corn Laws

- Ricardo sometimes accused of pessimism, but his target was the corn laws
- Corn laws restricted imports of corn into England, raised food prices, lowered profits, and raised rents
- To restore economic growth, repeal the corn laws, reduce food prices, restore profits and capital accumulation
- Corn laws only in the interest of the landowning class
- Import restrictions on manufactured goods less of a problem due to constant cost conditions

# Smith vs Ricardo

- Smith
  - Main constraint on growth is capital accumulation
  - Profits tend to decline with progress due to increased real wages and increase in competition
  - Tendency to monopoly and trade restriction in the interests of Capitalists but not of the rest of society
  - Interests of landlords and labourers in economic growth

# Smith vs Ricardo

- Ricardo
  - Constraint on growth is diminishing returns due to scarcity of fertile soil
  - Profits tend to fall due to the increased relative cost of the subsistence wage good bundle
  - Growth and progress can be restored by allowing food imports
  - Interests of the Landowners in high rents opposed to the interests of the other classes

# International Trade

- Unlike Smith, Ricardo realized that trade could take place on the basis of *comparative* advantage
- Examples based on labour theory of value: England and Portugal and wine and cloth
- Labour inputs required for a unit of output:
  - England—wine 120; cloth 100
  - Portugal—wine 80; cloth 90
- Before trade the domestic price ratios will differ
  - England— $P_w/P_c=6/5$ ;  $P_c/P_w =5/6$
  - Portugal— $P_w/P_c=8/9$ ;  $P_c/P_w=9/8$

# International Trade

- Portugal has an absolute advantage in both goods
- In England wine has an opportunity cost of  $1 \frac{1}{5}$  units of cloth, cloth has an opportunity cost of  $\frac{5}{6}$  units of wine
- In Portugal wine has an opportunity cost of  $\frac{8}{9}$  of a unit of cloth, cloth has an opportunity cost of  $1 \frac{1}{8}$  units of wine
- If trade were established at an international price ratio of 1/1 both countries could gain by specialization and trade
- Ricardo does not determine the international price ratio

# The Machinery Question

- Issue of the effect of the introduction of machinery on the workman
- Ricardo argued that there was a short run adverse effect as capital in the form of the wage fund is converted into fixed capital
- In the long run this effect overcome by capital accumulation and reductions in the cost of goods



# The Machinery Question

- Example
  - Year 1: total capital \$20,000, fixed capital \$7,000, circulating capital \$13,000. Capitalist's return on total capital 10%. Gross revenue \$15,000 of which \$2,000 is profit and \$13,000 is reinvested in circulating capital
  - Year 2: Half the labour is used to make a machine, so that output consists of a machine worth \$7,500 and salable output of 7,500. Capitalist takes his profit of \$2,000, leaving only \$5,500 to reinvest in circulating capital
  - Year 3: total capital \$20,000, fixed capital \$14,500, circulating capital \$5,500

# Ricardo—A Summary

- Main points in Ricardo
  - Labour theory of value, theory of rent and diminishing returns, wage fund theory, Malthusian population theory, corn model, corn laws, international trade, machinery, money
- Comparison of Smith and Ricardo
  - Value theory, growth, increasing versus diminishing returns, reasons for declining profits, interests of landlords and capitalists, trade theory, monetary theory.