



ECON 202 - MACROECONOMIC PRINCIPLES

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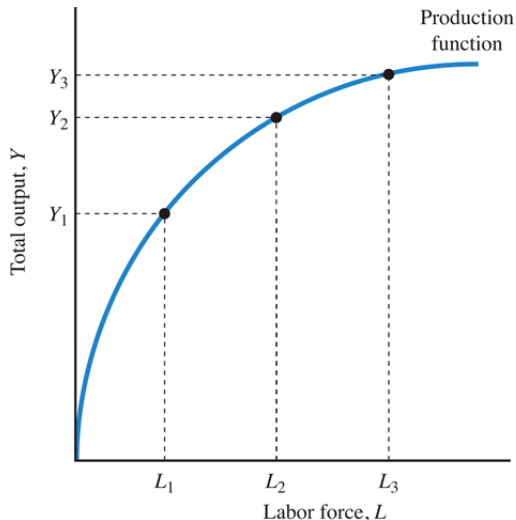
Chapter 7 - Full Employment

Full Employment - Topics

- Long-run vs Short-run
- Full employment
- Production function

Production Function

- With capital fixed, output increases with labor input, but at a decreasing rate

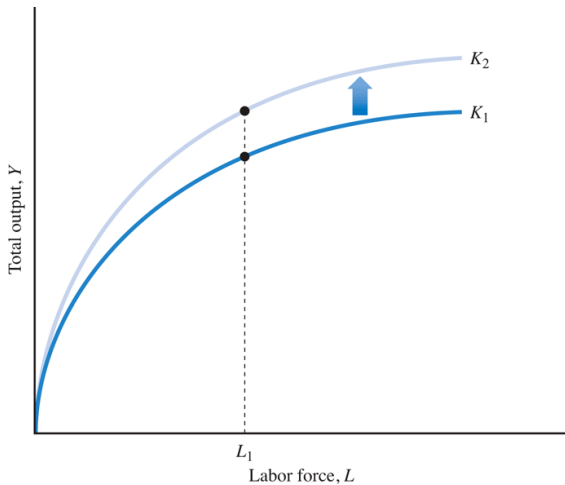


Diminishing Returns

TABLE 7.1 Output and Labor Input

Y (Output)	L (Labor Input)
1,000	300
1,500	400
1,900	500
2,200	600

Increasing Capital



Constant Returns to Scale

- Production function exhibits CRS:

$$n * Y = A \times F(n \times K, n \times N^d)$$

- Example: $n = 2$ so that $(2 \times K)$ and $(2 \times N^d)$ result in

$$2 \times Y = A \times F(2 \times K, 2 \times N^d)$$

- Cobb-Douglas production function:

$$Y = A \times K^{0.3} \times N^{0.7}$$

- Example, double all inputs, what happens to output?

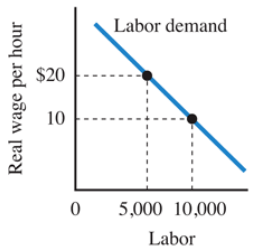
$$Y_{new} = A \times (2 \times K)^{0.3} \times (2 \times N)^{0.7} = ??$$

Other Properties of the Production Function

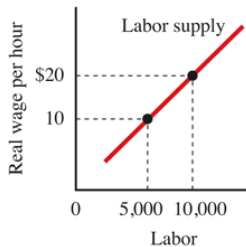
$$Y = A \times F(K, N^d)$$

- $Y \uparrow$ when either $N^d \uparrow$ or $K \uparrow$ or both
- $MPL \downarrow$ when $N^d \uparrow$
- $MPK \downarrow$ when $K \uparrow$
- $MPL \uparrow$ when $K \uparrow$

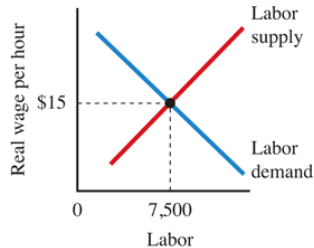
Labor Market Equilibrium



(A) Demand for Labor

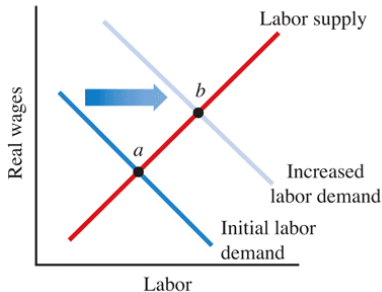


(B) Supply of Labor

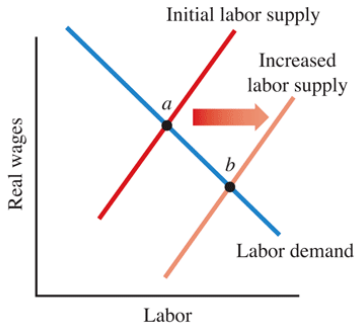


(C) Demand and Supply

Wages and the Demand and Supply for Labor



(A) If the demand for labor increases, real wages rise and the amount of labor employed increases.

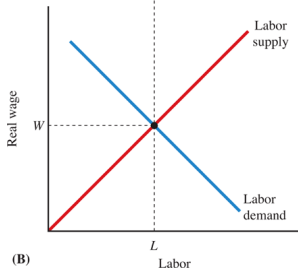
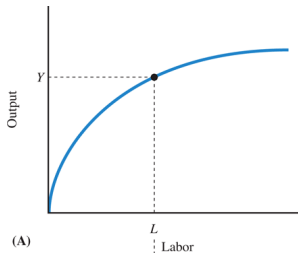


(B) If the supply of labor increases, real wages fall and the amount of labor employed increases.

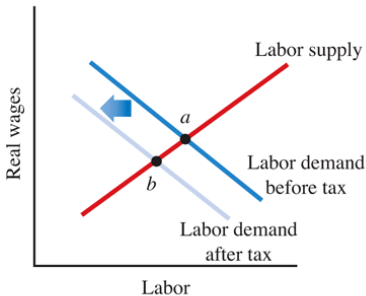
Black Death in England

- According to the research of Gregory Clark of the UC, Davis, the level of real wages for laborers in England was nearly the same in 1200 as it was in 1800
- Yet, during the period from 1350 to 1550, they were higher—nearly 75 percent higher in 1450, for instance, than in 1200
- Why were real wages temporarily so high during this period?
- Answer the bubonic plague
- Arrived from Asia in 1348 and caused a long decline in total population through the 1450s
- With fewer workers, there was less labor supplied to the market $w \uparrow$
- In the era before consistent and rapid technological advance, changes in population was the primary factor controlling living standards
- As the economist Thomas Malthus (1766–1834) observed, social maladies (Black Death etc.) would temporarily raise living standards until higher living standards led to increased population

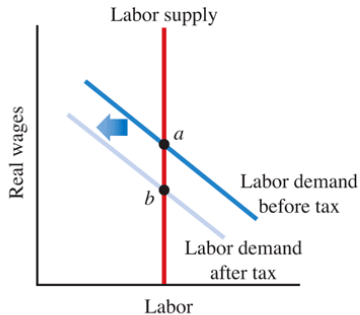
Full-employment Equilibrium



Tax on Labor



(A) A tax on labor shifts the labor demand curve to the left and leads to lower wages and reduced employment.



(B) If the supply curve for labor is vertical, wages fall but employment does not change.

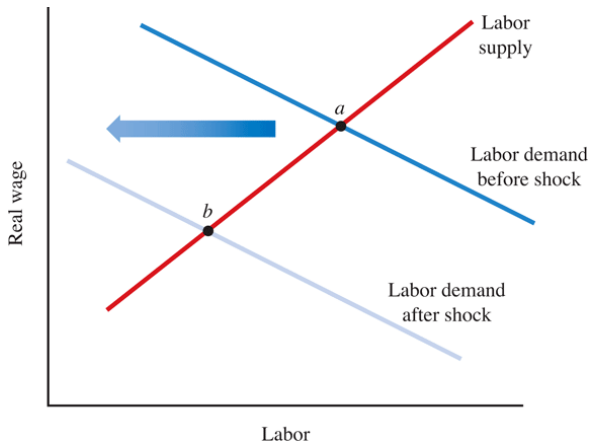
The Laffer Curve

- The relationship between tax rate τ and tax revenues
- It illustrates how $\tau \uparrow$ may not always lead to higher tax revenues if the high τ discourages economic activity

Real Business Cycle Theory (RBC)

- Technology shocks constantly hit the economy
- Economy “swings” back to equilibrium
- This causes fluctuations in GDP, employment, investment, etc.
- Cannot explain unemployment!

RBC and Adverse Shock



Alternative Uses of GDP for 2010 (% of GDP)

TABLE 7.2 Shares of Spending in GDP, Assorted Countries, 2010

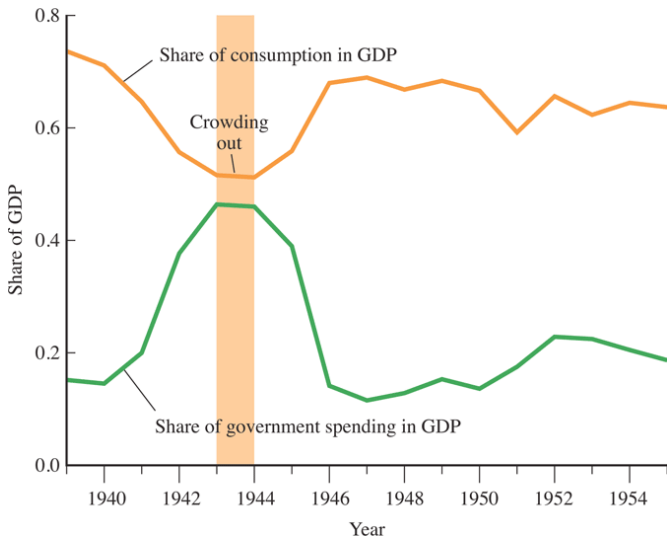
	C	I	G	NX
Hong Kong	62	23	10	5
United States	71	16	16	-3
France	58	19	25	-2
China	36	47	12	5
Germany	57	17	20	6

SOURCE: *International Monetary Statistics*, International Monetary Fund, 2012.

Crowding Out → Competing Demands

- $Y = C + I + G + NX$
- Crowding Out:
 - At full employment, that is Y is fixed, G increases, then either C , I , or NX or a combination of these decrease
- Crowding In:
 - G is decreased, hence, C, I , or NX increase

G Crowds Out C



G Also Crowds Out I

