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2/02/98

1 OF 4

ECON 305
SAKELLARIS

NOTES FROM 1/28/98

Macroeconomics studies:

- long term economic growth
- business cycles (divided into quarters of 3 mos)
- inflation
- international trade and lending
- macroeconomic policy

THE MEASUREMENT AND STRUCTURE OF THE NATIONAL ECONOMY

Goals:

- National Income Accounts, Relationships between key macroeconomic variables
- Gross Domestic Product (GDP)
- Savings and Wealth (private and government)
- Price Indexes, Inflation, and Interest Rates

National Income Accounting

- Product (find output only)
 - Income (received by producers)
 - Expenditure (spending by ultimate purchasers)
- ** ALL THREE ARE EQUIVALENT **

Fundamental Identity: TOTAL INCOME=TOTAL EXPENDITURE

Value Added= Value of Input-Value of Intermediate Inputs

Ex.:

ORANGE, INC.

Wages to employees	\$15,000
Taxes to government	5,000
Returns from sales	35,000



Sold to public	10,000	
<i>Sold to Juice, Inc.</i>	<i>25,000</i>	
		\$35,000 value added

JUICE, INC.

Wages	\$10,000	
Taxes	2,000	
<i>Oranges purchased</i>	<i>25,000</i>	
Revenue (sold to public)	40,000	
		\$15,000 value added

italicized items represent the same good and can not be double counted when calculating value added

Ultimate Purchasers: economic entities which purchase a good for consumption rather than as an intermediate good

Expenditure Approach: $\$10,000 + 40,000 = 50,000$

Value Added Approach: $\$35,000 + 15,000 = 50,000$

Feb. 2, 1998

GROSS DOMESTIC PRODUCT

A. Product Approach

The market value of final goods and services newly produced within a nation during a fixed period of time.

market value: what goods and services sell for (price x quantity)

Problems:

-some goods are not included, thus under estimating the GDP (underground economy, environmental cleanup, services of homemakers)

Notes:

- capital stock is counted at initial production
- depreciation subtracts value from initial value
- resale items are not counted



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OUTPUT

flow: produced over time

stock: accumulations at a given day

GNP

Produced by domestically owned factors of production

$$\text{GDP} = \text{GNP} - \text{NFP}$$

NFP

Net Factor Payment- Payments to domestically owned factors of production located abroad minus payments to foreign factors located domestically

GDP

Everything produced within the borders of the country

B. Expenditure Approach

$$Y = C + I + G + NX$$

Y=income / C=consumption / I=investment / G=government purchases of goods and services / NX=net exports (exports-imports)

C. Income Approach

$$\text{Private Disposable Income (PDI)} = Y + \text{NFP} + \text{TR} + \text{INT} - \text{T}$$

Y=GDP / NFP=Net Factor Payments / TR=transfers from govt / INT=interest payments on govt debt / T=taxes

$$\text{GDP} = \text{GNP} - \text{NFP}$$

$$\text{NGI (Net Government Income)} = \text{T} - \text{TR} - \text{INT}$$

receipts-(transfers+interest)



SAVING AND WEALTH

A. Wealth=Assets-Liabilities

National Wealth: sum of all wealth in nation (aggregate)

B. Saving=Current Income-Current Spending

savings rate= saving/income

$S_{govt} = (T - TR - INT) - G$
= budget surplus or budget deficit

$S_{private} = (Y + NFP - T + TR + INT) - C$

National Saving = $S_p + S_g$
= $(C + I + G + NX) = NFP - C - G$
= $I + NX + NFP$

$NX + NFP =$ Current Accounts Balance

CA Surplus: exports > imports

CA Deficit: imports > exports

$S = I + CA$

Savings is a flow of income which accumulates into stock of national wealth



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$S=I+CA$ Savings equals investment plus current account surplus

$$S_p=I+(S_G)+CA$$

National Wealth: Domestic physical assets, net foreign assets

-The savings of a nation can be equally as profitable invested domestically or abroad.

PRICE INDEXES, INFLATION, INTEREST RATES

Nominal Variables: Measured in terms of current prices

Real Variables: Measured in terms of base year prices

Ex:

Hamburger(1996) cost \$1.00, earning \$10,000

Hamburger(1997) cost \$2.00, earning \$20,000

Producer is just as well off because quantity of hamburgers remained constant.

Nominal GDP: quantity times current prices

Real GDP: quantity times current prices adjusted for inflation

Inflation Rate: percentage increase in prices

$$\text{Inflation: } \Pi_{t+1} = P_{t+1} - P_t / P_t$$

P_t : Price at time t

Consumer Price Index: basket of goods and services measured through time to see changes in price

GDP Deflator: measures price increases due to inflation, examines entire economy

Fixed Weight: Importance in basket of goods remains constant

Variable Weight: Importance in basket of goods varies



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Variable Price Level: $\frac{\text{Value of current output at current prices}}{\text{Value of current output at base year prices}}$
-Index is always 1 in base year

Fixed Price Level: $\frac{\text{Value of current output at current prices}}{\text{Value of base year output at base year prices}}$

Real Interest Rate: Nominal interest rate minus inflation
 $r = i - \Pi$ $\Pi = \text{inflation}$

PRODUCTIVITY, OUTPUT & EMPLOYMENT

Focus on aggregate quantities

Economic Actors: Firms, Households, Government

Markets: Labor, Goods, Assets

Equilibrium: A market is in equilibrium when quantity demanded equal quantity supplied

Goal: Model of the Economy

- A. Introduce the production function of output
 1. Discuss the marginal productivity of labor and capital
 2. Analyze supply shocks
- B. Discuss determinants of labor demand and supply
- C. Equilibrium in the classical model of the labor market
- D. Unemployment
 1. Definitions
 2. Frictional, structural, cyclical
 3. Okum's Law
- E. Discussion of Keynesian vs. Classical approaches

Production Function: how much the economy produces

Production: inputs into outputs

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Inputs: capital (K) and labor (N)

Production Function: $Y=A,F(K,N)$

Y: real output produced in a given period of time

A: number measuring overall productivity

F(): function relating inputs to capital

K: capital stock

L: number of workers employed in the period

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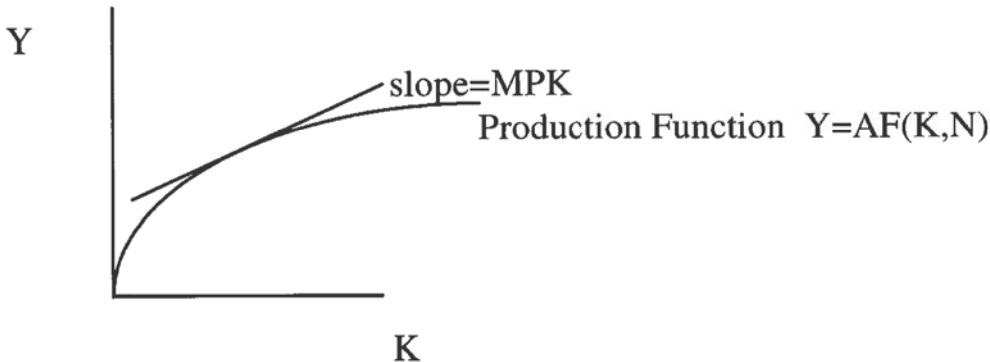
CONTINUATION OF PRODUCTIVITY, OUTPUT, AND EMPLOYMENT

$Y = A F(K, N)$ for example: $A(K^{0.3}N^{0.7})$

- technological improvements increase productivity given same capital and labor
- most effective to measure change over a long period of time (ex. decade)

In a economic graph, only 2 things can vary. Everything else must be held constant.

Ex.:



Law of Diminishing Marginal Productivity: For corresponding increases in capital, there are less than corresponding increases in output (slope diminishes over time as K increases)

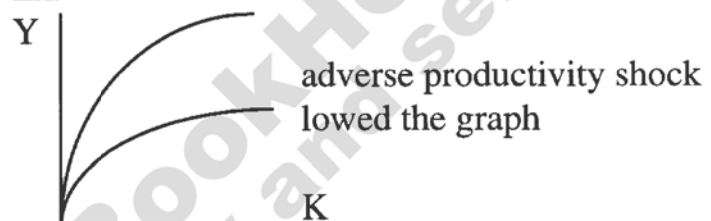
Movements Along Graph

- change in x or y axis

v. Movements of Graph

- change in other fixed variable (non-graphed variable)

Ex:





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How do firms choose K , N , and thus Y ?

K : If investment is less than depreciation, capital increases

N : Can change quickly to adapt to new circumstances

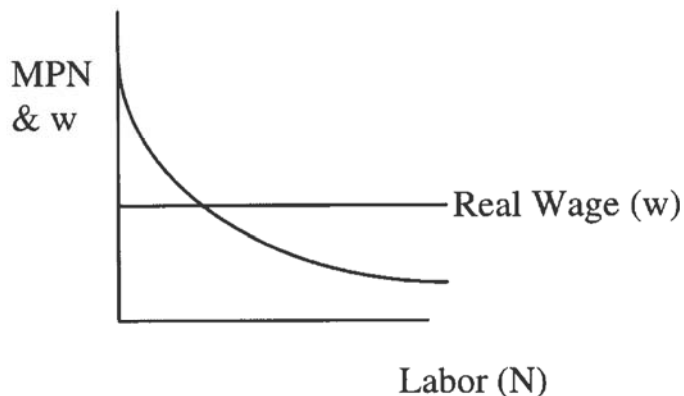
Labor Market: Demand for Labor (firm decisions)
Supply of Labor (individual decisions)

Real Wage: Marginal cost of extra worker

Marginal Benefit: =Marginal product

MPN: =real wage

-the lower the wage, the more labor demanded





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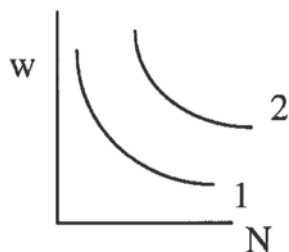
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ANNOUNCEMENTS:

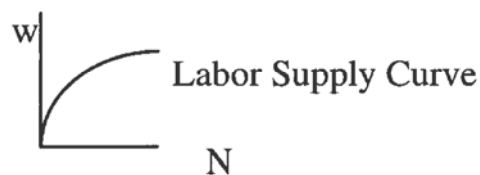
- Answers to the problem sets in the back of the text are available at the BSOS Copy Center in Tydings
- All graphs, charts, etc. used in lecture are taken from the text



Change from 1 to 2 due to positive tech. shock
Lower wage , more workers are hired

LABOR SUPPLY

- Supply curve comes from individuals
 - Benefits: Income leads to consumption
 - Costs: Foregone leisure
 - Price of labor: w (real wage)
- Labor supply negatively related to wealth
- Labor supply can be positively and negatively related to current/future real wage
- Whenever the relative price of 2 things change, two effects take place
 - Substitution Effect: if real wage goes up, price of leisure increases
 - Income Effect: if real goes up (income increases), you feel wealthier and consume more of the things you like (leisure)
 - According to studies, substitution effect usually dominates





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-
- If you expect high wages in the future, work less now, labor supply curve will shift left
 - Demographics shift graph
 - Labor force participation rate shifts graph

w \searrow Labor Supply