

(Brown boxes: Economic actors) (Blue boxes: Markets)  
(Green Lines: Flow of Money)

## **Some Definitions**

- There are 3 markets we are interested in: markets for goods and services, markets for labor, and markets for capital; hence, there are 3 prices: prices for goods and services, price for labor (wage), price for capital (interest rate)
- A market economy is an economy in which the prices are determined in a free price system according to demand-supply model
- According to Adam Smith, the conjunction of self-interest, competition, and supply and demand is capable of allocat-

ing resources in society, which is called the *Invisible Hand*

- In a free market each participant will try to maximize self-interest, and by doing that he promotes that of the society more effectually than when he really intends to promote it
- This can be summarized as good results do not necessarily come from good intentions, and that good intentions do not necessarily lead to good results
- This is the founding justification for the laissez-faire economic philosophy, in which government does not have control over markets, including restrictive regulations, taxes, tariffs

- While most developed nations today could be classified as having mixed economies, they are often said to have market economies because they allow market forces to drive most of their activities, typically engaging in government intervention only to the extent that it is needed to provide stability
- In capitalist economic system, a term introduced by Karl Marx, the means of production are privately owned and operated for profit
  - Some define capitalism as where all the means of production are privately owned, and some define it more

loosely where merely "most" are in private ownership. Some define it as a system where production is carried out to generate profit, regardless of legal ownership titles

- Even though most capitalist economies are also market economies, an economy could be *socialist market economy* (e.g., China, in which critical sectors are owned by public, and the state affect the others through financial system, which lends according to state priorities ), or *capitalist non-market economy* (e.g. capitalist economy run by monopolies, even minimum wage laws can be thought as leading the same phenomenon)

## Summary of the Parts of the Course

1. *The Introduction - The Data of Macroeconomics*
2. *Classical Theory: The Economy in the Long Run:* Prices are flexible and assumes market clearing. The assumption, that money—a nominal variable— does not affect the real economy, is the assumption of Classical Economists and called *Classical dichotomy*. Best suited for analyzing a time horizon of at least several years
3. *Growth Theory: The Economy in the Very Long Run:* Builds on the classical model, but assumes growth in the capital stock, the labor force, and technology

4. *Business Cycle Theory (Keynesian View): The Economy in the Short Run:* Prices are sticky. If demand for goods and services increases, the supply can increase temporarily by over employing the factors of productions. Designed to analyze short-term economic fluctuations, happening from month to month or from year to year
5. *Macroeconomic Policy Debates:* Builds on the previous analysis, the economy in the short run. It considers how the government should respond to short-run fluctuations in real GDP and unemployment, and examines the various views on the effects of government debt
6. *More on the Microeconomics Behind Macroeconomics*

***Part 2 - CLASSICAL THEORY: THE ECONOMY IN THE LONG RUN***

Two Main Assumptions:

- There is no growth in the factors of production (capital, labor and technology)
- Prices are flexible (Money is neutral; Classical Dichotomy)



# **Ch3 - National Income: Where It Comes From and Where It Goes**

## **Outline**

- Supply of Goods and Services
- Demand for Goods and Services
- Bringing the Supply and Demand for Goods and Services  
Into Equilibrium

## Total Production (Supply) of Goods and Services

### The Production Function

- The production technology expresses the available technology

$$Y = F(K, L)$$

where  $Y$  denote the amount of output and  $K$  and  $L$  are factors of production

- A typical production functions have a property called *constant returns to scale (CRTS)*, which states that an increase of an equal percentage in all factors of production

causes an increase in output of the same percentage, that is,  $zY = F(zK, zL)$

– Ex: Cobb Douglas Production Technology :  $Y = K^\alpha L^{1-\alpha}$  where  $0 < \alpha < 1$

$$\Rightarrow (zK)^\alpha (zL)^{1-\alpha} = z^\alpha z^{1-\alpha} K^\alpha L^{1-\alpha} = zY$$

- Some production functions show *decreasing returns to scale* (*DRTS*) property, that is,  $zY < F(zK, zL)$  for any positive number  $z$

– Ex:  $Y = K^\alpha L^\beta$  where  $\alpha + \beta < 1$

- A production function show *increasing returns to scale* (*IRTS*) property, if.  $zY > F(zK, zL)$  for any positive number  $z$ 
  - Ex:  $Y = K^\alpha L^\beta$  where  $\alpha + \beta > 1$
- Note: We usually use CRTS but not DRTS or IRTS, why?
  - DRTS implies that we cannot double production by doubling inputs. Hence, the smaller firms has cost advantage compared to larger firms
  - IRTS (increasing return to scale) means producing one more output requires less input with increasing production. Hence, the larger firms (usually firms existing

in the market) has cost advantage compared to possible new entrants

- \* IRTS may explain the reality in a sector (if there is a monopolist) but not in the overall economy
- CRTS is consistent with competitive markets (perfect competition). Proportional changes in inputs give rise to proportional changes in output. Hence, firms, independent of their size, can compete with each other

## Neo-Classical Production Function

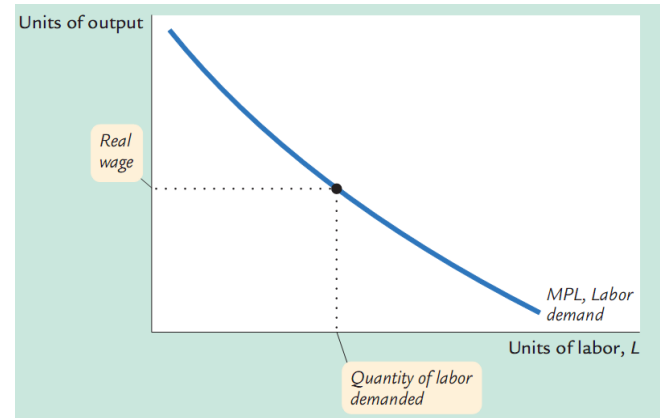
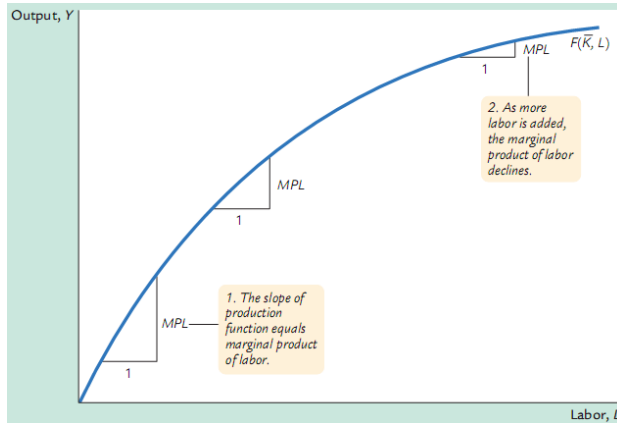
- It uses CRTS:  $F(zK, zL) = zF(K, L)$  for any positive number  $z$

- Positive and diminishing marginal product  $\forall K > 0$  and

$$\forall L > 0 \quad \frac{\partial F}{\partial K} > 0 \quad \frac{\partial^2 F}{\partial K^2} < 0$$
$$\frac{\partial F}{\partial L} > 0 \quad \frac{\partial^2 F}{\partial L^2} < 0$$

- Inada Conditions:  $\lim_{K \rightarrow 0} F_K = \infty$      $\lim_{L \rightarrow 0} F_L = \infty$   
 $\lim_{K \rightarrow \infty} F_K = 0$      $\lim_{L \rightarrow \infty} F_L = 0$

- The graph on the left shows MPL obtained from Neoclassical Production Function



- Marginal Product of Labor (MPL) measures the amount of output produced by extra labor

## The Decisions Facing a Competitive Firm

- The goal of a firm is to maximize profit

$$\textit{Profit} = \textit{Revenue} - \textit{Labor Costs} - \textit{Capital Costs}$$

$$\pi = PY - WL - RK$$

- Firms take the prices in the market ( $P, W, R$ ) as given, and choose the optimal amount of inputs (L and K) to maximize its profit
  - In Economics we assume that producers rent the capital. Even if the capital is their own, this can be interpreted as they rent it from themselves, as there is always outside option of renting it to somewhere else



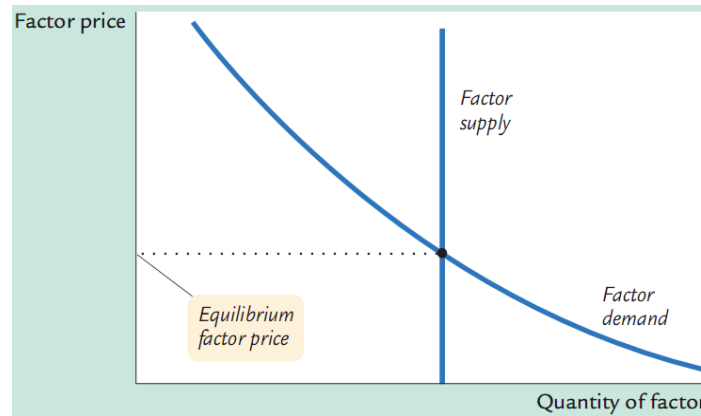
- Hence, firms' maximization problem is as follows

$$0 = P \frac{\partial F(K, L)}{\partial L} - W \quad \Rightarrow \quad \frac{\partial F(K, L)}{\partial L} = MPL = \frac{W}{P}$$

$$0 = P \frac{\partial F(K, L)}{\partial K} - R \quad \Rightarrow \quad \frac{\partial F(K, L)}{\partial K} = MPK = \frac{R}{P}$$

- $W/P$  is the real wage (the goods can be purchased by  $W$ ), and  $R/P$  is the real rental price of capital
- $MPL = W/P$  says that at the optimum the real wage paid to worker is equal to his/her production
- Since  $MPL$  goes from infinity to 0, we know that there is a  $MPL$  for each  $W/P$ , real wage. So we can calculate the amount of labor consistent with it

- We assume that supply of factors of production is fixed
- The intersection of demand and supply curves gives the equilibrium price



\*\* As we will see, the analysis for capital (K) is analogous

## Note: How Is National Income Distributed to the Factors of Production? (Neoclassical Theory of Distribution)

- Economic profit:  $PY - WL - RK$
- Economic Profit in real terms (we divide the previous equation by P):

$$Y - MPL * L - MPK * K$$

- It can be shown that when production function is CRTS

$$Y = F(K, L) = \frac{\partial F(K, L)}{\partial L} * L + \frac{\partial F(K, L)}{\partial K} * K$$

hence

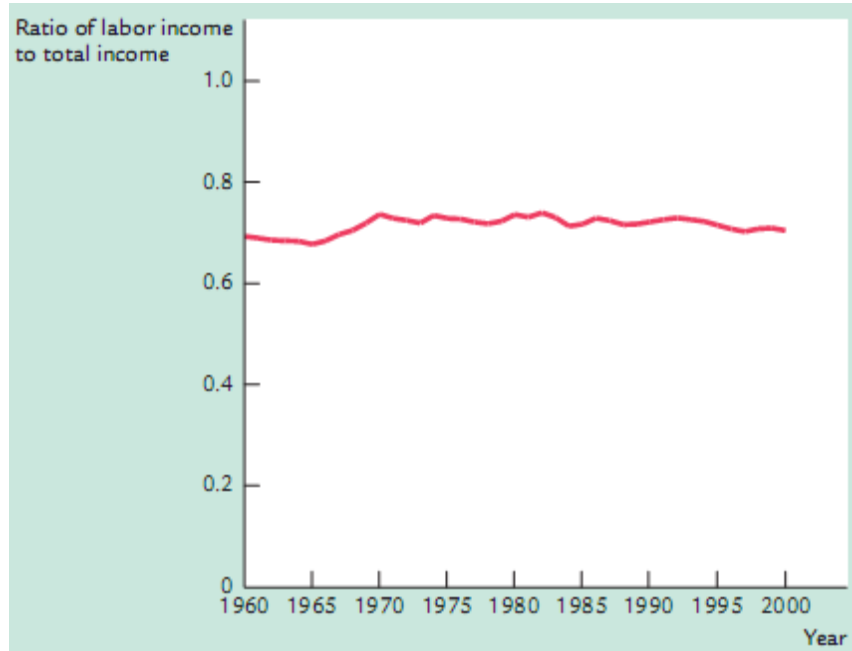
$$Y = MPL * L + MPK * K$$

- So economic profit is 0 (CRTS implies perfect competition)
- Total output (income) is divided between the payments to capital and to labor, depending on their marginal productivities
  - In the real world profits are expected to be different than 0 as usually firms own their own capital, and as perfect competition may not hold
  - Accounting Profit = Economic Profit + MPK\*K

## The Cobb Douglas Production Function

- Cobb Douglas Production Technology :  $Y = K^\alpha L^{1-\alpha}$   
where  $0 < \alpha < 1$
- Capital income:  $MPK * K = \alpha K^{\alpha-1} L^{1-\alpha} * K = \alpha Y$
- Labor income:  $MPL * L = (1 - \alpha) K^\alpha L^{-\alpha} * L = (1 - \alpha) Y$
- This indicates the constancy of factor shares. What about

the data?



## The Demand for Goods and Services

- In a closed economy:  $Y=C+I+G$

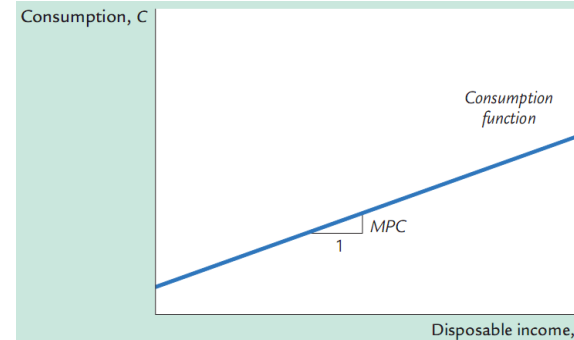
### Government Purchases $\bar{G}$

- We assume that government expenditure—defense, education, health,—is fixed and given (exogenous)
- It is financed by taxes;  $\bar{T}$ , which we also assume fixed, and also by borrowing from financial markets by issuing government debt
  - If  $G=T$  it is balanced budget, if  $G>T$  government runs a budget deficit, and if  $G<T$  government runs a budget surplus (public saving)

## Consumption $C=C(\bar{Y}-\bar{T})$

- People produce output, pay taxes, and consume over the remaining, which is  $Y-T$ , called disposable income)

Marginal Propensity to Consume shows how much consumption changes when disposable income increases by one dollar



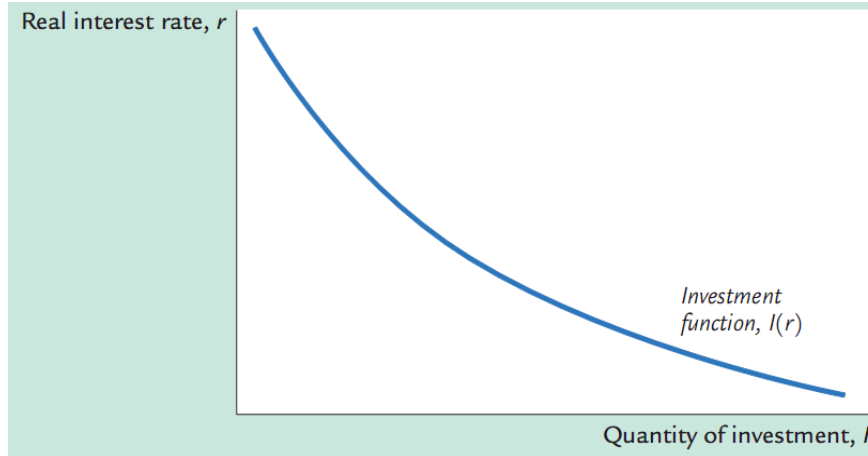
- Private saving is equal to:  $(Y-T)-C$



## Investment $I=I(r)$

- In liberal economies we assume output is produced by private firms, not governments
- Firms invest if its return is higher than the cost of borrowing money
- Hence, an increase in the interest rates ( $r = i - \pi$ ) reduces

# the number of profitable projects



## Bringing the Supply and Demand for Goods and Services Into Equilibrium

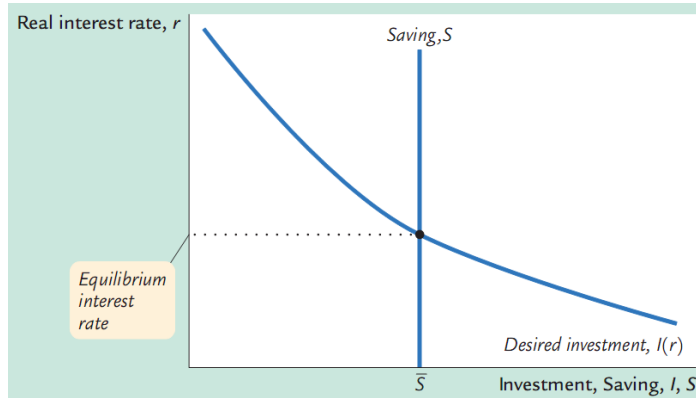
- Remember that  $\bar{Y} = C(\bar{Y} - \bar{T}) + I(r) + \bar{G}$
- Writing the above identity such that

$$[\bar{Y} - \bar{T} - C(\bar{Y} - \bar{T})] + (\bar{T} - \bar{G}) = \bar{S} = I(r)$$

- The term,  $[\bar{Y} - \bar{T} - C(\bar{Y} - \bar{T})]$ , is the *private saving*, and  $(\bar{T} - \bar{G})$  is the *public saving*
- If the government runs a deficit,  $\bar{G} - \bar{T} > 0$ , the private saving is used both for investment and for government purchases. If the government runs a surplus,  $\bar{T} - \bar{G} > 0$ , private and public savings are used to invest.

$$\bar{Y} = C(\bar{Y} - \bar{T}) + I(r) + \bar{G}$$

- What secures the equilibrium? Interest rate!
- There is unique  $r$  at which the demand for goods and services equals the supply
- The same equation could be interpreted by using the supply and demand for loanable funds. At  $r$ , there is an equilibrium for the supply and demand for loanable funds



- If  $r < r^*$ , investors want more output than households want to save. Equivalently, the quantity of loanable funds demanded exceeds the quantity supplied. And  $r$  rises.
- if  $r > r^*$ , households want to save more than firms want to invest:  $r$  falls.

## Policy Analysis

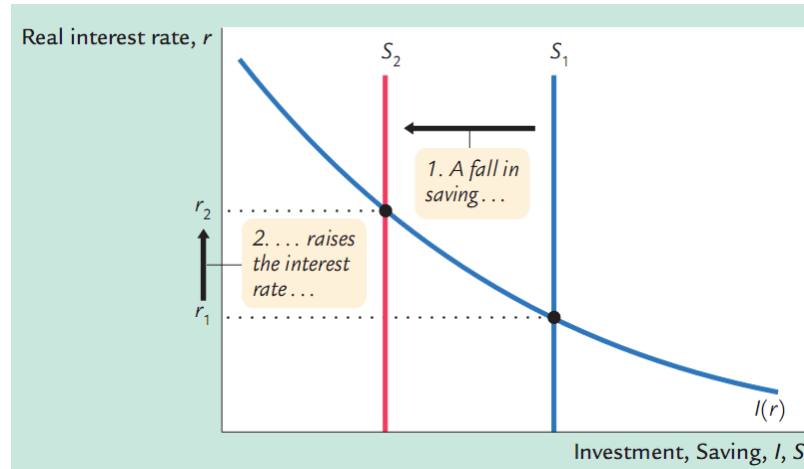
### - Changes in Saving: An Increase in Government Purchases, $\Delta G \uparrow$

- An increase in the government consumption (expansionary fiscal policy) increase the demand for goods and services. As supply is fixed, it can only be met by decrease in investment, which requires interest rate to rise

$$Y = C(\bar{Y} - \bar{T}) + I(r) + G$$

- We say that increase in government purchases *crowds out* investment

- *Consider the Market for Loanable Funds: Increase in government purchases reduces public and national saving. As figure shows, saving schedule to shifts to the left, Hence, interest rate rises, investment falls*



- **Changes in Saving: A Decrease in Taxes,  $T \downarrow$ ,**

- *Consider the Real Economy:* Government purchases are fixed. The increase in consumption must be met by decrease in investment, interest rates have to increase

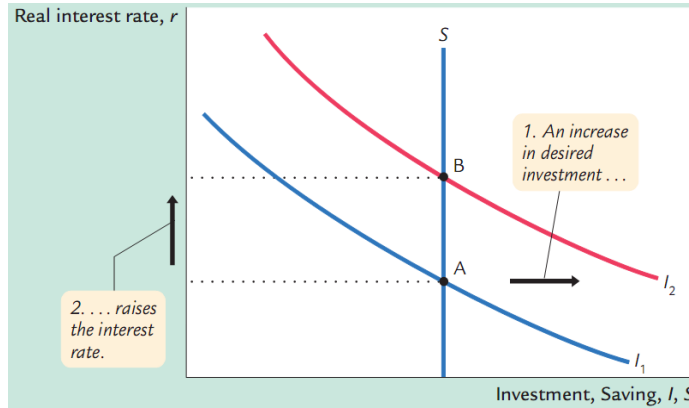
$$Y = C(\bar{Y} - T) + I(r) + \bar{G}$$

- *Consider the Market for Loanable Funds:* As consumption goes up, the reduction in savings shifts the supply of loanable funds and increases the equilibrium interest rate



## - Changes in Investment Demand

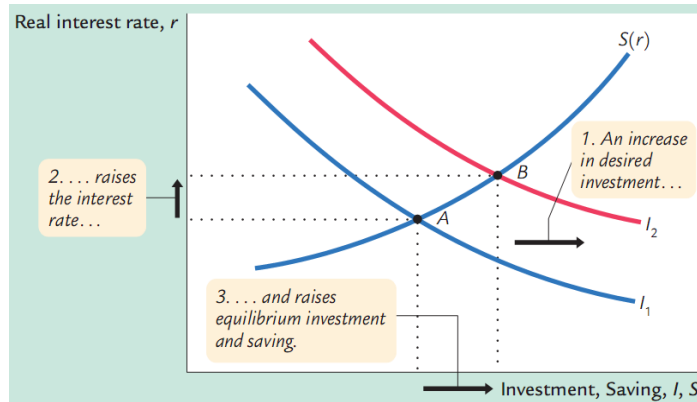
- At every interest rate, there is higher demand for investment. The schedule shifts to the right



- Since saving is fixed, this only causes interest rate to rise, but investment does not increase

## - What if Saving Depends on Interest Rate

- Higher interest rate may induces people to increase saving



- In this case, an increase in investment demand causes an increase in both investment and equilibrium interest rate

## **Ch4 - Money and Inflation**

### **The Functions of Money**

- Medium of exchange: We use it to buy goods and services
- Unit of account: Money provides the terms in which prices are quoted and debts are recorded
- A store of value: Money is a way to transfer purchasing power from the present to the future

**Historically there are two types of money**

- Fiat money (ex. currencies)
- Commodity money (ex. gold standard)

## **How the Quantity of Money Is Controlled**

- The quantity of money available is called the money supply
- The control over the money supply is called monetary policy
- In the United States and many other countries, monetary policy is delegated to a partially independent institution called the Central Bank
  - Central bank of the United States is the Federal Reserve (FED)
  - Central bank of Turkey is the Central Bank of the Turkish Republic (TCMB)

## How the Quantity of Money Is Measured

- The main measures of money stock in the increasing order are
  - *M0 (Currency in Circulation)*: The sum of outstanding paper money and coins
  - *MB (Total Currency, or Monetary Base)*:  $M0 + \text{Banks' cash reserves}$
  - *M1*:  $M0 + \text{Demand Deposits (the funds people hold in their checking accounts) and other checkable deposits}$
  - *M2*:  $M1 + \text{Savings and Time Deposits}$

## Quantity Theory of Money

- Money \* Velocity = Price \* Output ( $M*V=P*Y$ )
  - Y: Real GDP    P: GDP Deflator    V: Income Velocity of Money
  - M: Different measures of money supply can be used
- Ex: suppose that 60 loaves of bread are sold in a given year at \$0.50 per loaf. Then T: 60 loaves per year, and P: \$0.50 per loaf. Suppose further that the quantity of money in the economy is \$10
  - $V = PT/M = (\$0.50/\text{loaf} * 60 \text{ loaves/year}) / (\$10) = 3$  times per year

- The quantity equation, written in percentage-change form, is

$$\begin{aligned} & \% \text{ Change in } M + \% \text{ Change in } V \\ = & \% \text{ Change in } P + \% \text{ Change in } Y \end{aligned}$$

## The Money Demand Function and the Quantity Equation

- $M/P$  is called *Real Money Balances* and expresses the real quantity of money in the economy
- Higher income ( $Y$ ) leads to a greater demand for real money balances:  $(M/P)^d = kY$ , where  $k$  is a constant
- Together with  $M^*V=P^*Y$ , it finds that  $V=1/k$



## The Assumption of Constant Velocity; Money, Prices, and Inflation

- If we assume that velocity is constant, we find that:  $M * \bar{V} = P * T$ 
  - The money supply determines the nominal GDP. Hence, a change in the quantity of money (M) must be met by a change either in Y (real GDP) or in P, or both
    - \* Notice that, introduction of credit cards, for instance, can rule out the assumption of constant velocity
  - CBs have ultimate control over the prices

## Inflation and Interest Rates

### Two Interest Rates: Real and Nominal

- The nominal interest rate: What banks pay
- The real interest rate: The increase in your purchasing power

$$r = i - \pi$$

- This equation is only an approximation and is valid if  $r$ ,  $i$ , and  $\pi$  are relatively small (say, less than 20 percent per year)
- If you have  $M$  level of money when the price level in the economy is  $P$ , you can buy  $M/P$  amount of real goods

- If you deposit your money to a bank, at the end of the deposit period it will be  $M(1+i)$ , and during that time the price level will be  $P(1+\pi)$ . So you can buy  $[M(1+i)]/[P(1+\pi)]$  amount of goods
- Hence, the real interest rate is

$$\frac{\frac{M(1+i)}{P(1+\pi)}}{\frac{M}{P}} = \frac{(1+i)}{(1+\pi)} = (1+r)$$

- Ex: If the interest rate (nominal) is %80, and the inflation is %50. What is the real interest rate?
  - Suppose you save 100 TL in a bank for a year. And suppose that price level in the economy is 10 TL. These means you are able to consume 10 goods.
  - After a year, your money will be 180 TL, and the price level will be 15 TL. This means you will be able to consume 12 goods. So the real interest rate you receive is %20, as

$$r = (1 + i)/(1 + \pi) - 1 = (1 + 0.8)/(1 + 0.5) - 1 = 0.2$$

– which is not equal to

$$r = i - \pi = 0.8 - 0.5 = 0.3$$

## The Fisher Effect

- Note that  $r = i - \pi$  is only an identity, a definition. In reality,  $r$  and  $\pi$  determine  $i$ 
  - CB determines  $\pi$
  - Saving and investment determines  $r$
  - Hence, the relationship between the inflation rate and the nominal interest rate is called the *Fisher effect*:  $i = r + \pi$
- \*Note that given  $r$  and  $\pi$ , a change in  $i$  by a central bank affects  $\pi$  as well (this time there is a negative correlation between the variables)

## Two Real Interest Rates: Ex Ante and Ex Post

- Since inflation cannot be forecasted with certainty, the expected real return to the money you save in a bank may differ from reality
  - The ex ante real interest rate:  $r = i - \pi^e$
  - The real interest rate actually realized (the ex post one):  $r = i - \pi$
- And the more accurate form of the Fisher Effect is:  $i = r + \pi^e$

# The Nominal Interest Rate and the Demand for Money

## The Cost of Holding Money; Future Money and Current Price

- Holding money in your wallet is giving up interest. So  $i$  is the cost of holding money
  - This has two compounds. You give up the real return,  $r$ , in addition the real value of your money declines at the rate of inflation,  $\pi$
- We noted that the demand for real money balances:  $(M/P)^d = kY$

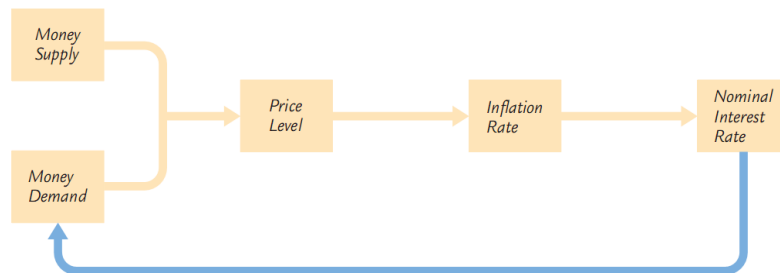


- If  $i$  is the cost of holding money, its new form of is:  $(M/P)^d = L(i, Y)$

- As a result,

$$(M/P)^d = L(r + \pi^e, Y)$$

- This suggests that the price level depends not only on today's money supply, as quantity theory suggests, but also on the money supply expected in the future



- Finally, the demand has to equal to supply

$$M^s/P = (M/P)^d$$

- Hence,

$$M^s/P = L(r + \pi^e, Y)$$

- Suppose the CB announces that it will raise the money supply in the future
  - Then people expect higher money growth and higher inflation. Through the Fisher effect, this increase in expected inflation and raises the nominal interest rate.

- The higher nominal interest rate reduces the demand for money, which results in a higher price level

## **The Costs of (un)Expected Inflation**

- Arbitrarily redistributes wealth among individuals
- Uncertainty about future inflation may discourage investment and saving

## **Benefits of Inflation**

- Increase in money supply increases the demand in the short-run; hence, can be used as a tool to mitigate economic recessions
- Inflation reduces the real level of debt, but it can also leads permanently higher inflation

## Hyperinflation

- Hyperinflation is often defined as inflation that exceeds 50 percent *per month*, which is just over 1 percent per day
- If there is an inadequate tax system, governments will either borrow (if they can), or use CB to cover their deficit
- The end of hyperinflations almost always coincide with fiscal reforms; reducing government spending and increasing taxes.

## Ch6 - Unemployment

- By now we assumed full employment. However, every day some workers lose or quit their jobs, and some unemployed workers are hired

### Some Definitions

- *Labor Force (L):* Employed + Unemployed ( $E+U$ )
- *Unemployment Rate:*  $U/(E+U)*100$
- *Labor-Force Participation Rate:*  $E+U/(E+U+Home\ Sitting) *100$

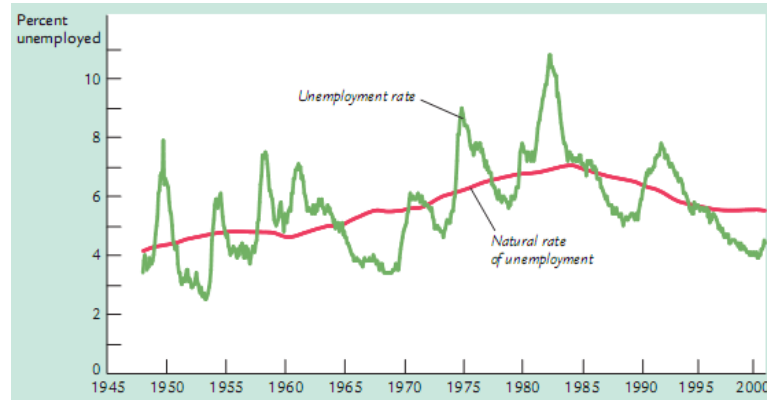
- *Full Employment:* When there is no unemployment ( $U=0$ )
- *Natural Level of Unemployment:* The level of unemployment that is caused from the permanent problems in the supply side of the economy, such as frictional and structural unemployment
  - *Frictional (Search) Unemployment:* Frictional unemployment is the time period between jobs when a worker is searching for a job, or transmitting from one job to another.
  - *Structural Unemployment:* It may result from wage rigidity, job rationing, or the unemployed workers may

lack the skills needed for the jobs

- *Natural Level of Output (Potential Amount)*: This is the amount of production when unemployment is at its natural level.
  - *Output Gap*: The difference between potential (natural level of) output and actual output. These differences are called Macroeconomic fluctuations, or Business Cycles
  - Hence, labor market dynamics is important to explain



## fluctuations in Macroeconomic Variables.



- The labour market is in equilibrium at the natural level of unemployment. And in the steady state, the number of people who find a job in a given period of time is equal to the number of people who lose their jobs.

- If  $f$  denotes the job finding rate (the fraction of unemployed individuals who find a job in a given period of time) and  $s$  denotes the job separation rate (the fraction of employed individuals who lose their job in that period), then

$$fU = sE$$

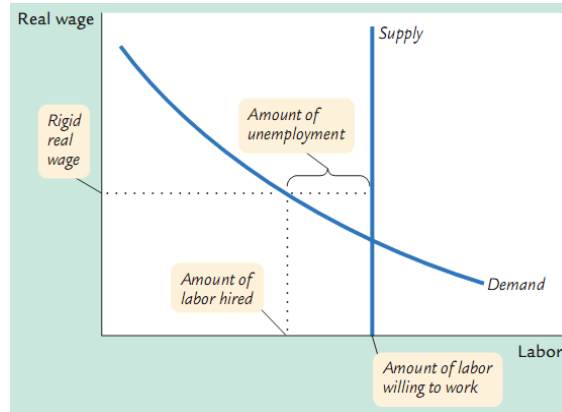
remember that  $L = E + U$

- If you know  $s$  and  $f$ , you can calculate the unemployment rate in the economy

$$fU = s(L-U) \quad \Rightarrow \quad f\frac{U}{L} = s\left(1 - \frac{U}{L}\right) \quad \Rightarrow \quad \frac{U}{L} = \frac{s}{s + f}$$

## Structural Unemployment

- Real Wage Rigidity: The failure of wages to adjust until labor supply equals labor demand



## **Why There is Wage Rigidity?**

- **Minimum-Wage Laws**
  - They are meant to raise the income of the working poor
  - Especially for the unskilled and inexperienced workers, the minimum wage raises their wage above its equilibrium level
- **Unions and Collective Bargaining**
  - The unemployment caused by unions and by the threat of unionization creates a conflict between different groups of workers— insiders and outsiders

- Efficiency Wages

- Efficiency-wage theories assume that high wages make workers more productive and also reduce labor turnover
- The firm can reduce the problem of *moral hazard* (the tendency of people to behave inappropriately when their behavior is imperfectly monitored) by paying a high wage.
- If a firm reduces its wage, the best employees may take jobs elsewhere, leaving the firm with inferior employees who have fewer alternative opportunities. Economists recognize this unfavorable sorting as an example of *adverse selection*

## **Other Issues in Unemployment: The Duration of Unemployment**

- If most unemployment is short term, one might argue that it is frictional or result of an economic crisis. On the other hand, long-term unemployment is more likely to be structural unemployment

## Transitions Into and Out of the Labor Force

- Our model of natural rate of unemployment assumes that the size of the labor force is fixed. However, changes in the labor force is important. Remember that:
  - *Labor-Force Participation Rate (LFPR)*:  $(E+U)/(E+U+\text{Home Sitting}) * 100$
  - Q: What happens if some of Home Sitting people enter to the labor force?
    - \* It would boost unemployment rates, does not necessarily make the economy worse

– In developing countries like Turkey, where around %70 of women are home sitting; hence, participation rates matter a lot

- Some numbers from the Turkish Economy

Male P.R.  
%70

Female P.R.  
%25

U. Rate  
%15

- Suppose the number of men is equal to the number of women in the economy ( $m=w$ ), and female participation rate increases to %50 (%25 of total women start to seek a job). Calculate the new unemployment rate in the economy?



– Before:

$$* \text{ Labor Force} = m * 0.7 + w * 0.25 = 0.95m$$

$$* \text{ Unemployed} = \text{U. Rate} * \text{Labor force} = 0.95m * 0.15 = 0.1425m$$

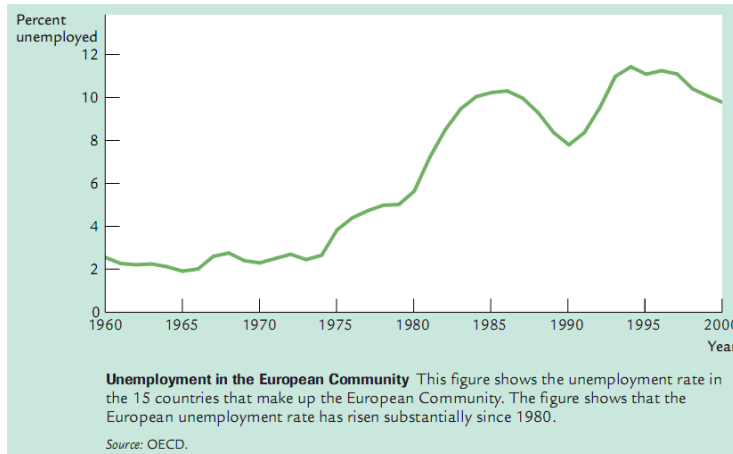
– After:

$$* \text{ Labor Force} = m * 0.7 + w * 0.50 = 1.25m$$

$$* \text{ Unemployed} = 0.1425m + 0.25m = 0.3925m$$

$$* \text{ U. Rate} = U/L = 0.3925m / 1.25m = \%32$$

## The Rise in European Unemployment



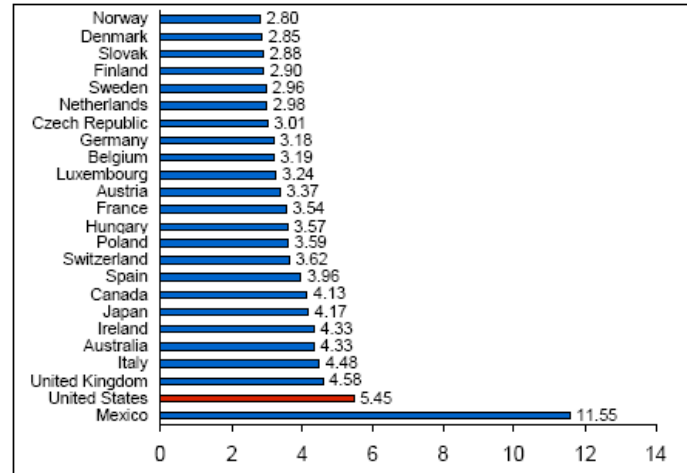
- What is the cause of rising European unemployment? It may be the generous benefits for unemployed workers, coupled with a technology driven fall in the demand for unskilled workers relative to skilled workers following global-

ization

- Reducing the magnitude of government benefits for the unemployed would encourage workers to accept low-wage jobs. But it would also exacerbate economic inequality—the very problem that welfare-state policies were designed to address
- Historically, unemployment has been a more severe problem for the European countries than it is for the US. As in the US wage contracts are more flexible than that in Europe. On the other hand, inequality is more severe in

## the US

Household income inequality  
(ratio of 90th to 10th percentiles)



- This evidence indicates that the US is more liberal and less social than the Europe
- This is also partly reflected by the Union Memberships

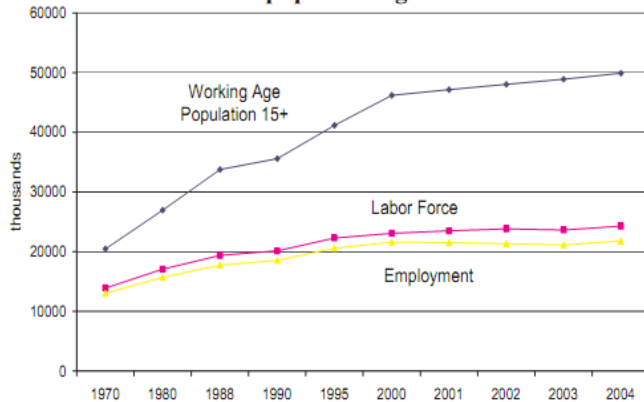
## rates across Europe and in the US

Country	Percentage Union Workers	Country	Percentage Union Workers
Sweden	84	Germany	33
Denmark	75	Netherlands	28
Italy	47	Switzerland	28
United Kingdom	41	Japan	26
Australia	34	United States	16
Canada	33	France	11

Source: Clara Chang and Constance Sorrentino, "Union Membership Statistics in 12 Countries," *Monthly Labor Review* (December 1991): 46-53.

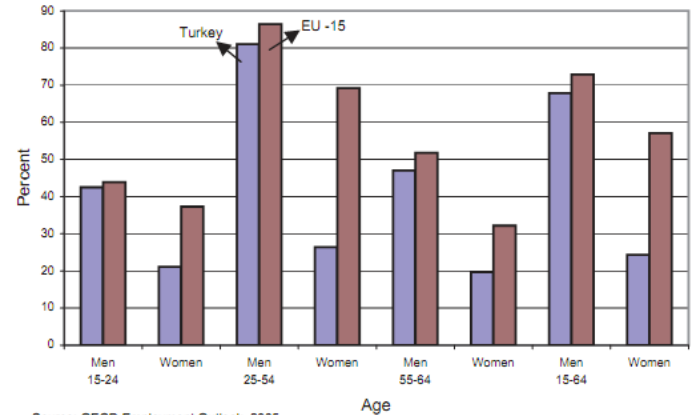
# Turkey's Labor Market (Source: World Bank Document)

**Figure 1: Labor force participation and employment has trailed population growth**



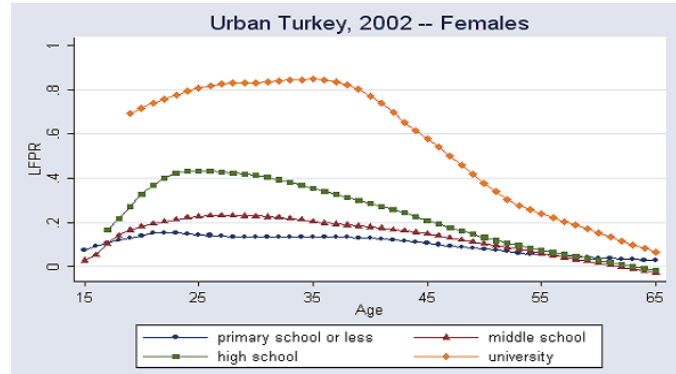
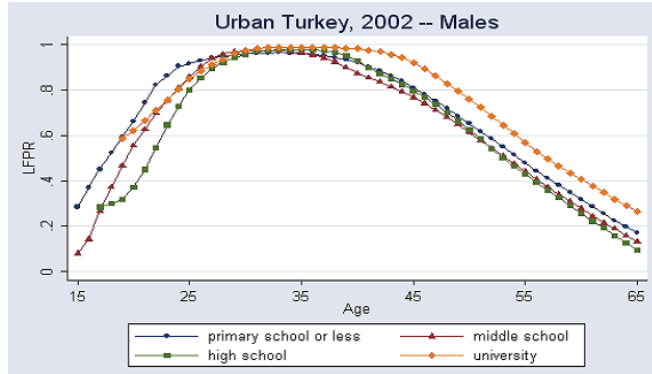
Source: Bulutay (1995) for 1970-1987; SIS HLFS for 1988-2004

**Figure 2: Employment rates, Turkey and the EU-15, 2004**



Source: OECD Employment Outlook, 2005

# Age-Participation Profiles



**Table 1: Unemployment Rates for the Young and Educated, 2003**

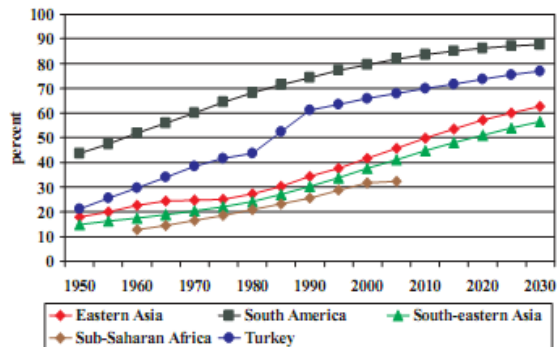
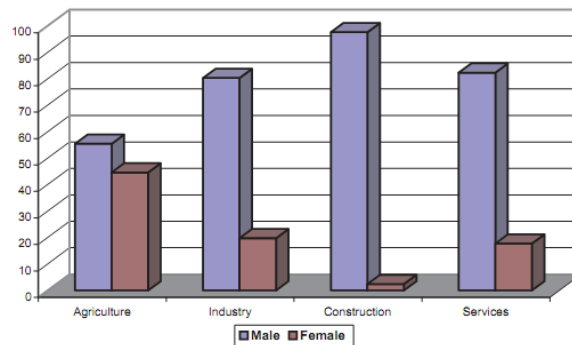
Age group	Illiterate	No diploma	Primary	Secondary	Tertiary
15–19	18.0	27.7	13.7	29.5	0.0
20–24	17.0	37.5	16.1	23.4	38.5
25–29	16.3	14.8	12.2	12.2	14.8
30–34	13.3	16.7	10.3	7.1	5.3
35–39	11.4	16.7	8.1	5.4	4.1
40–49	7.5	9.5	7.8	4.6	2.5
50–59	5.0	4.9	5.9	5.7	2.2
60+	1.6	1.5	1.4	4.0	0.0

Source: Household Labor Force Survey

**Table 2: Employment by Sector, 1980 and 2004**

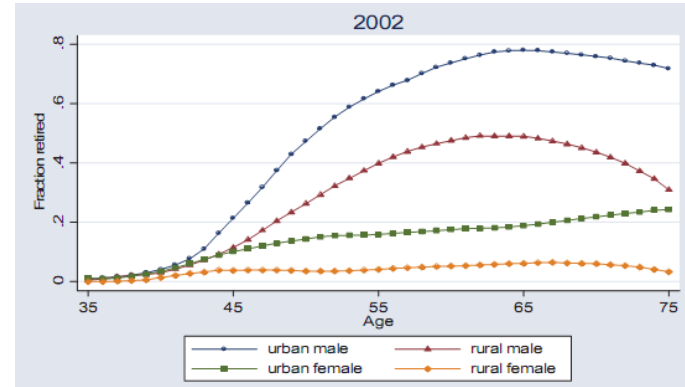
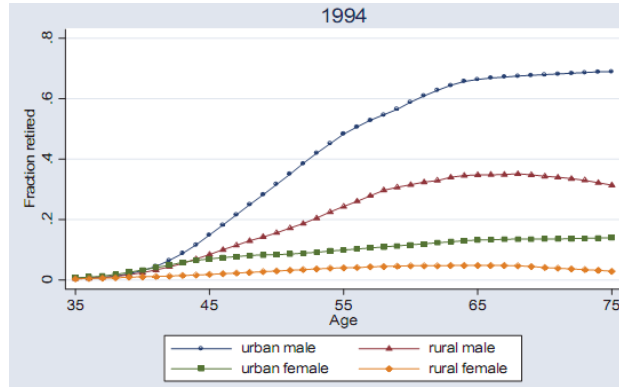
	(millions)	
	1980	2004
Employment, total (15 years and over)	15.7	21.7
<i>Employment in agriculture</i>	8.4	7.4
<i>Employment in industry</i>	2.3	4.0
<i>Employment in construction</i>	0.9	1.0
<i>Employment in services</i>	4.1	9.4

Source: Bulutay (1995) for 1970–87; SIS HLFS for 1988–2004; for 1988–99, HLFS April and October averages.

**Figure 1.8 – Share of Urban Population, 1950-2050****Figure 1.11: Gender Differences in Employment by Sector, 2004**



- Age-Retirement Profiles by Location and Sex, 2002 and 1994



- The age threshold for full retirement in Turkey has been implicated as being one of the most generous in the world

Figure 4: Real Wages in Private Manufacturing

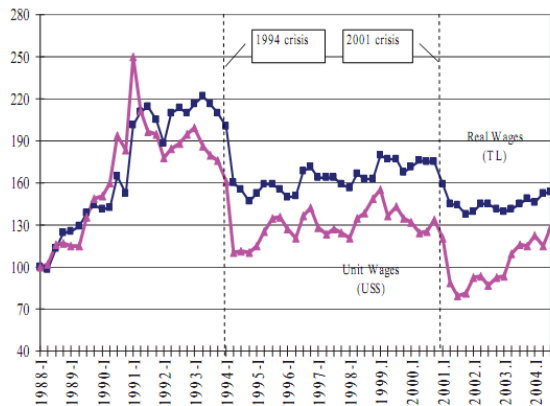
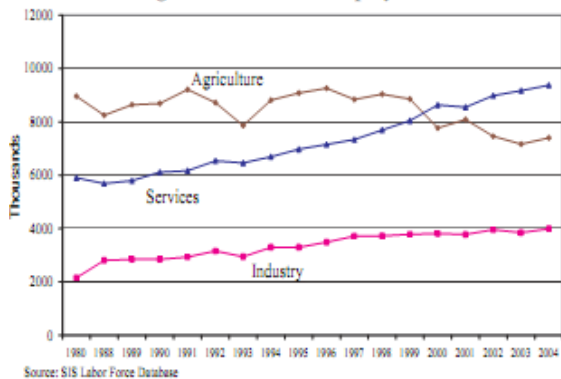


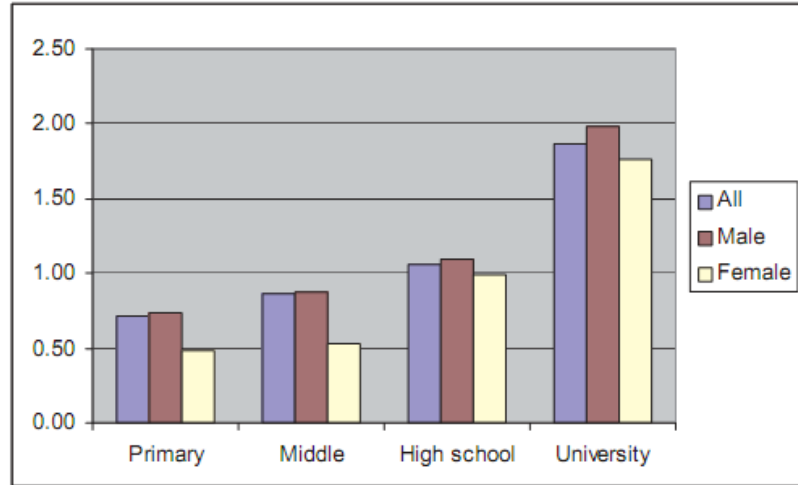
Figure 2.5: Sectoral Employment



- Flexible real wages have allowed labor market adjustment. Real wages fell significantly after crises in 1994 and 2001. In contrast, employment has been remarkably stable, during both booms and busts. As Turkey transitions changes

to a low inflation environment, real wage adjustment becomes more difficult. Hence, flexibility in employment will become increasingly important for firms as they adjust to changing macroeconomic conditions

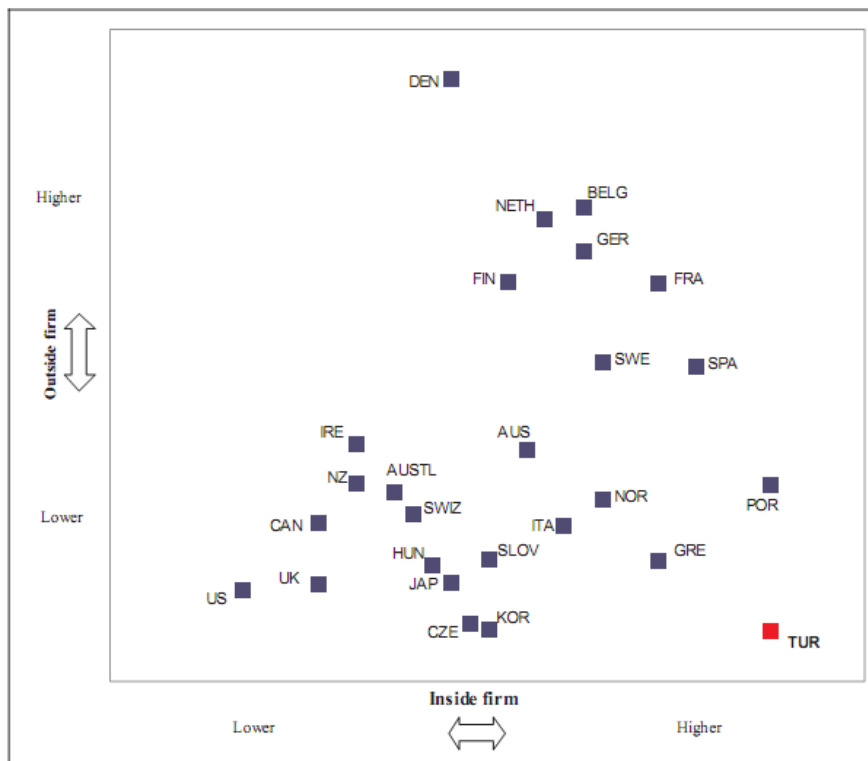
**Figure 3.14: Mean Monthly Earnings by Educational Attainment and Sex, Urban Full-Time Workers, 15-65 Years, 2002**



Source: HLFS (1988 and 1989), HIDS (1994), HBS (2002) and author calculations

Note: Mean monthly earnings for workers in education group divided by aggregate mean monthly earnings (all nonagricultural).

Figure 4.1: Approaches Used by OECD Countries to Provide Social Protection for Workers



Source: OECD 2004 and authors' estimations

**Table 4.4: Membership in Social Security Institutions, 2003**

Membership status	Number of workers	Percent
<b>Registered</b>	<b>10,205,000</b>	<b>48.3</b>
<i>Social Security Institution (SSK)</i>	<i>5,551,000</i>	<i>26.2</i>
<i>Retirement Fund (ES)</i>	<i>2,177,000</i>	<i>10.3</i>
<i>Bag Kur</i>	<i>2,455,000</i>	<i>11.6</i>
Private institutions	22,000	0.1
<b>Not registered</b>	<b>10,944,000</b>	<b>51.7</b>
Total employed workforce	21,149,000	100.0

Source: Labor Force Survey

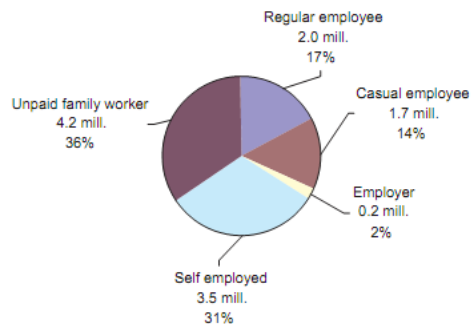
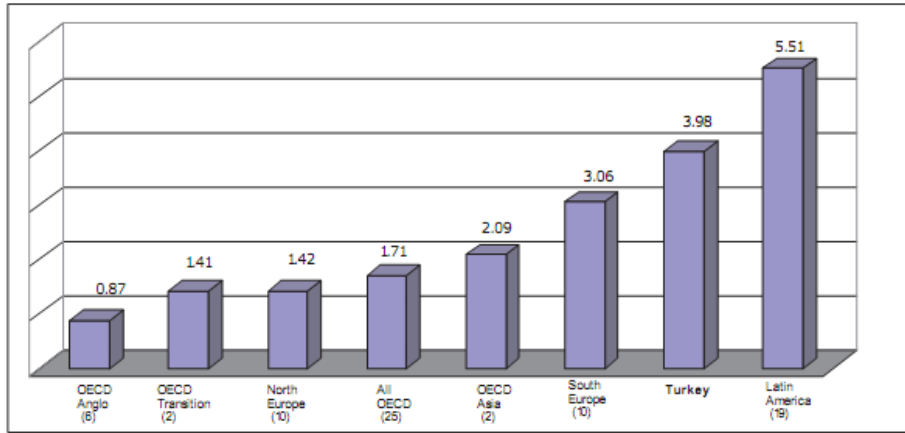
**Figure 4.2: Employment Status of the Employed Labor Force Without Social Security Coverage, 2004**

Figure 4.3: Job Security Cost Estimates, Turkey, Other OECD Countries, and Latin America



Source: Based on Heckman and Pages (2004, table 3). Data for Turkey are for 2004 and data for other OECD countries and Latin America is for 1999.

- A measure of job Security is employment protection as the cost of complying with regulations in dismissing a regular worker for economic reasons. It is in terms of the number

## of monthly wages required to comply with regulations

**Table 4: Hours Worked Per Week In Manufacturing**

	2004
Turkey	52.1
EU-15	38.5
Greece	42.7
Portugal	39.6
Spain	38.9
Ireland	39.1
Czech Rep.	40.3
Estonia	40.1
Hungary	40.3
Lithuania	39.2
Poland	41.8
Slovenia	40.3
Mexico	44.7
Korea	48.0

Source: Author calculations based on Eurostat; for Turkey, ILO data based on LFSs; for Mexico (ILO data based on LFSs) and Korea (ILO data based on Labor related establishments survey for 2001);

High working hours in Turkey suggest that severance requirements and favorable tax treatment of overtime work are discouraging creation of new jobs



## Summary

- Ch3 analyzes the real economy (real prices for factors of production and real interest rate)
- Ch4 analyzes the effect of money on nominal prices and nominal interest rate
- Ch5 shows that the price rigidities in the labor market (unemployment) exist even in the long run