

ISTANBUL BILGI UNIVERSITY

Lecture Notes for EC152

Introduction to Macroeconomics

Delivered by

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based on

N.G.Mankiw: *Principles of Economics (3th ed)*

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PART EIGHT: THE DATA OF MACROECONOMICS

Measuring A Nation's Income

Chapter 23

What did we learn until now?

- In EC101 we learned about *microeconomics*
- Microeconomics is the study of how *individual households and firms* make decisions and how they interact with one another in markets
- We began by analysing how the forces of *supply and demand* determine the price for each good and service produced in the economy
- We spent much time over *production, costs and the behaviour of firms* in different types of markets such as perfect competition, monopoly, oligopoly and oligopolistic competition
- Finally we looked into the theory of *income distribution* implied by this analysis

What will we learn next?

- In EC102 we learn *macroeconomics*
- Macroeconomics studies the economy *as a whole*
- Its goal is to explain the economic changes that affect *many* households, firms and markets at the same time
- With critical variables such as employment, unemployment, economic growth, inflation, the exchange rate, the interest rate, taxes, the budget, etc.
- Macroeconomic issues are often the subject of heated *debates* by the public
- They are very relevant in answering many questions about what is happening to the *Turkish economy* or the world economy

Macroeconomics

- Macroeconomics answers questions like:
- Why is the *income* of citizens is higher in some countries and lower in others?
- Why do *prices* rise more rapidly in some periods and countries than others?
- Why do *production and employment* expand in some years and contract in others?
- Why does the *exchange rate* change and how does it affect the economy?
- Why does the *interest rate* change and how does it affect the economy?
- What are the effects of a *budget* deficit or surplus on the economy?

Plan of the second semester

- In Part VIII we study the *data of macroeconomics*: national income accounting and the price indexes used to measure inflation
- In Part IX we look at the *real economy in the long run*: growth, saving, investment, finance, risk and unemployment
- Part X introduces *money* and the causes and effects of *inflation* in a closed economy in the long run
- Part XI *opens the economy* to the outside world in the long run through trade and capital movements
- Part XII analyses *short-run fluctuations* in output, inflation, interest rate, etc. and the effects of monetary and fiscal policy

Plan of Part Eight

- The aim of Part VIII is to introduce basic data of macroeconomics
- Ch.23 deals with *National Income Accounting*, in other words about measuring accurately the total production of goods and services in the economy
- Gross Domestic Product, Gross National Product, GDP deflator will be defined
- Ch. 24 deals with *measuring inflation*
- What is a price index? How the Consumer Price Index and the Pruducer Price Index are calculated?
- Other *macroeconomic data* such as the Balance of Payments, Central Bank Balance Sheet, etc. will be defined later at relevant chapters

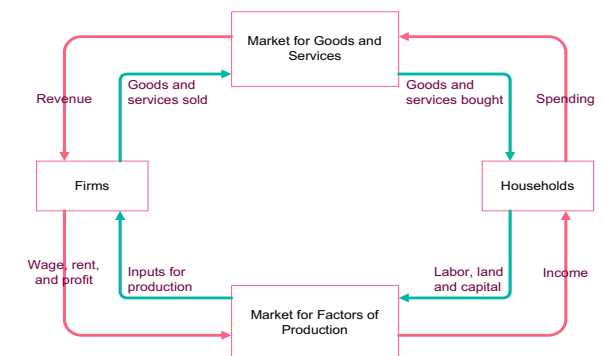
The economy's income and expenditure

- In order to establish whether the economy is doing well or poorly, it is natural to look at the total income that everyone in the economy is earning during one period of time
- For an economy as a whole, *income must equal expenditure* because:
 - Every transaction involves one buyer and one seller
 - Every TL of spending by some buyer is a TL of income for some seller
- Everyone's income is someone's expenditure; everyone's spending is someone's income

The simple circular flow diagram

- We can look back to the simple *circular flow diagram* first introduced in Chapter 2
- We assumed there was no government, no financial markets and no economic transactions with the outside world
- In other words, a simple closed economy
- Households and firms interacted in two markets
 - Markets for *goods and services*
 - Markets for *factors of production*
- There were two types of flows
 - Real flows: of goods, services and factor inputs
 - Nominal flows: of spending and income

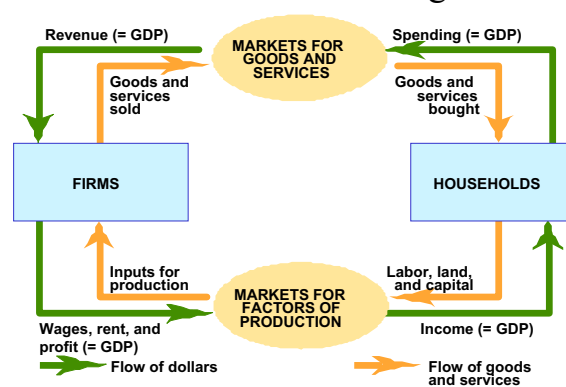
The simple circular flow diagram



Gross domestic product – GDP

- *Gross Domestic Product (GDP)* is a measure of the total incomes and expenditures of an economy
- In other words, GDP is the *total market value* of all *final goods and services* produced within a *country* in a given *time period*
- Same economic phenomenon has three aspects:
 - Production and sale of goods and services
 - Spending on these goods and services
 - Factor incomes from these goods and services
- We can now redraw the circular flow diagram
- *Important assumption*: to keep it simple, we assume that there is no government, no financial sector, no economic transactions with the outside world

The Circular-Flow Diagram



National income accounting

- Gross Domestic Product (GDP) : *Gayrisafi Yurtiçi Hasıla (GSYİH)*
- *Türkiye İstatistik Kurumu (TÜİK)* (before DİE) prepares National Income Accounts in Turkey
- It is calculated on an *annual and quarterly* (three monthly) basis
- GDP includes all items produced in the economy and sold *legally* in the markets
- GDP excludes most items that are produced and consumed at home without ever entering the marketplace (such as *subsistence agriculture*)
- It excludes items produced and sold *illicitly*, such as illegal drugs

Important features of GDP

- While computing the GDP, production is valued at *market prices*
- GDP records only the value of *final goods* but not the intermediate goods to prevent double counting
- GDP includes both
 - *tangible goods* such as food, clothing, cars, etc.
 - *intangible services* such as haircuts, housecleaning, doctor visits, education, etc.
- It covers goods and services currently produced, but excludes transactions involving goods produced in the past (buying a second hand car or house)
- It measures the value of production within a country during a specified *time period*

On Value Added

- A major danger for GDP calculations is the *double counting* of the inputs used for the production of final goods and services
- Exemple: in bread, you have wheat, flour, transport, energy, baking, etc,
- If you add all of them in GDP and then bread, they will be counted more than once
- *Value Added* corresponds to sales minus inputs bought from other firms
- Value added is by definition equal to *factor incomes*: wages, profit, rent and interest
- Value added tax (*Katma Değer Vergisi - KDV*) in Turkey works on the same principle

Gross National Product – GNP

- GDP measures the income produced within a country for a given period of time
- Part of the product may belong to *non-residents*: such as interest and dividend payments abroad
- Yet, some residents may also earn *income abroad*: such as interest and dividends received
- *Gross National Product (GNP)* or *Gayrisafi Milli Hasıla (GSMH)* is the total market value of all final goods and services produced within a given period of time by a nation's permanent residents, regardless of where they are
- It is calculated by adding *net factor income from abroad* to GDP

Other measures of income

- *Net National Product NNP (Net Milli Hasıla)* is obtained by subtracting from GNP the wear and tear (depreciation) of the nation's stock of capital
- *National Income (Milli Gelir)* is obtained by subtracting from NNP indirect taxes paid by firms to government (sales tax, VAT, etc) and subtracting subsidies received
- *Personal Income* is the income that households and non-corporate businesses in the economy receive: it excludes non-distributed profits of corporations
- *Disposable Personal Income* is obtained by subtracting from Personal Income taxes paid to and transfers received from the government

National Income Identity

- In macroeconomics, GDP or income is usually represented with the letter Y
- Expenditures in an economy are divided into four main categories
- Consumption (C), Investment (I), Government purchases (G) and Net exports (NX)

$$Y = C + I + G + NX$$
- This is a very important *identity* that we shall be using again and again in macroeconomics
- It says: income is equal to spending on private consumption plus spending on investment plus government purchases plus the difference between exports and imports

Components of GDP

- *Consumption (C)*: all spending by households on goods and services with the exception of purchases of new houses
- *Investment (I)*: all spending on capital equipment, on inventories and on buildings and other structures (including new housing) by businesses and government
- *Government purchases (G)* includes all spending on goods and services by local and central public administration except for transfer payments (they are not made in exchange for goods and services)
- *Net exports (NX)* is equal to exports of goods and services minus imports of goods and services

Methods of national accounting

PRODUCTION	EXPENDITURE	INCOME
Farming	CONSUMPTION (Private)	WAGES
Forestry	Food and Beverages	Private sector
Fishing	Durable Goods	Public sector
Agriculture Total	Semi-Durable Goods	SALARIES
Mining and Quarrying	Energy, Transport, Communication	Private sector
Manufacturing	Services	Public sector
Electricity, Gas, Water	Ownership of Dwellings	INCOME OF SELF EMPLOYED
Industrial Total	GOVERNMENT CONSUMPTION	RENT
Construction Industry	Salary, Wage	PROFITS
Wholesale, Retail	Other Current	Non-corporate profits
Services of Hotel and Restaurant	GROSS FIXED CAPITAL FORMATION	Corporate profits
Commerce Total	Public sector	Corporate profits
Transportation and Communications	Machinery	INTEREST INCOME
Financial Institutions	Construction (building)	
Ownership of Dwellings	Construction (Other)	
Professions and Services	Private sector	
Relative Banking Services	Machinery	
SECTORS TOTAL	Construction (all)	
Government Services	CHANGES IN STOCKS	
Non-profit private services	Exports (Goods and Services)	
TOTAL	Imports (Goods and Services)	
Import taxes	NET EXPORTS	
GROSS DOMESTIC PRODUCT (GDP)	GROSS DOM. PRODUCT (GDP)	
Factor income from abroad	Statistical Errors	
Factor income to abroad	GDP (After St.Err.)	
NET FACTOR INCOME		
GROSS NATIONAL PRODUCT (GNP)		

GNP: sectors (1)

	REAL (Trillion TL)		NOMINAL (€)
	2005	% of GNP	2005
Farming	15,6	10,7	46,1
Forestry	0,7	0,5	1,8
Fishing	0,4	0,3	2,1
Agriculture Total	16,8	11,5	50,0
Mining and Quarrying	1,6	1,1	7,0
Manufacturing	36,4	25,0	101,2
Electricity, Gas, Water	4,9	3,3	15,5
Industrial Total	42,8	29,4	123,7
Construction Industry	6,2	4,2	21,3
Wholesale, Retail	30,2	20,7	82,2
Services of Hotel and Restaurant	4,8	3,3	17,5
Commerce Total	35,0	24,0	99,7
Transportation and Communications	19,8	13,6	71,7
Financial Institutions	2,3	1,6	21,5
Sectors Sub-total	116,7	80,2	366,5

GNP: sectors (2)

	REAL (Trillion TL)		NOMINAL (€)
	2005	% of GNP	2005
Sectors Sub-Total	116,7	80,2	366,5
Ownership of Dwellings	6,2	4,2	22,4
Professions and Services	3,3	2,2	16,9
(-) Relative Banking Services	1,8	1,3	12,5
Other Sectors Sub-Total	11,2	7,7	51,8
Sectors Total	128,0	87,9	418,3
Government Services	5,2	3,6	47,7
Non-profit Organisations	0,4	0,3	3,0
TOTAL	136,2	93,5	465,4
Import Tax	10,6	7,3	21,8
GDP (producer prices)	146,8	100,8	487,2
Net Factor Income from Abroad	-1,1	-0,8	-0,8
Factor Income from Abroad	5,0	3,4	11,9
Factor Income to Abroad	6,1	4,2	12,7
GNP (purchasing prices)	145,7	100,0	486,4

GDP: expenditures (1)

	REAL (Trillion TL)		NOMINAL (€)
	2005	% of GDP	2005
FINAL PRIVATE CONSUMPTION	95,6	65,1	328,6
Food and Beverages	32,0	21,8	101,4
Durable Goods	20,7	14,1	53,6
Semi-Durable Goods	15,5	10,5	49,1
Energy, Transportation, Communication	10,9	7,4	62,7
Services	9,8	6,7	37,5
Ownership of Dwellings	6,7	4,6	24,2
GOVERNMENT CONSUMPTION	10,0	6,8	63,7
Salary, Wage	5,2	3,6	47,7
Other Current	4,8	3,2	15,9
GROSS FIXED CAPITAL FORMATION	40,7	27,7	95,3
Public Sector	7,8	5,3	20,7
Machinery	2,6	1,8	5,2
Construction (Building)	1,5	1,0	4,2
Construction	3,7	2,5	11,3
Private Sector	32,9	22,4	74,6
Machinery	23,9	16,3	46,0
Construction	9,0	6,2	28,6
DOMESTIC DEMAND (exc. Changes in stocks)	146,3	99,6	487,5

GDP: expenditures (2)

	REAL (Trillion TL)		NOMINAL (Billion YTL)	
	2005	% of GDP	2005	% of GDP
FINAL PRIVATE CONSUMPTION	95,6	65,1	328,6	67,4
GOVERNMENT CONSUMPTION	10,0	6,8	63,7	13,1
GROSS FIXED CAPITAL FORMATION	40,7	27,7	95,3	19,6
DOMESTIC DEMAND (exc. Changes in stocks)	146,3	99,6	487,5	100,1
CHANGES IN STOCKS	7,8	5,3	25,4	5,2
EXPORTS (Goods and Services)	66,2	45,1	133,6	27,4
IMPORTS (Goods and Services)	73,1	49,8	165,6	34,0
NET EXPORTS	-6,8	-4,7	-32,0	-6,6
GROSS DOMESTIC PRODUCT	147,2	100,3	480,9	98,7
Statistical Error	-0,4	-0,3	6,3	1,3
GROSS DOMESTIC PRODUCT (After Sta.Errors)	146,8	100,0	487,2	100,0

Turkey: nominal and real GNP

	Nominal GDP (Trillion TL)			Real GDP (Trillion TL)		
	Value	% Change	Index	Value	% Change	Index
1989	227	75,9	304	75,5	76	0,3
1990	393	72,9	526	84	9,3	112
1991	630	60,3	843	84	0,9	113
1992	1.093	73,5	1.463	89	6,0	120
1993	1.982	81,3	2.652	97	8,0	129
1994	3.868	95,2	5.177	91	-5,5	122
1995	7.762	100,7	10.388	98	7,2	131
1996	14.772	90,3	19.769	105	7,0	140
1997	28.836	95,2	38.591	113	7,5	151
1998	52.225	81,1	69.892	116	3,1	155
1999	77.415	48,2	103.604	111	-4,7	148
2000	124.583	60,9	166.729	119	7,4	159
2001	178.412	43,2	238.768	110	-7,5	147
2002	277.574	55,6	371.476	119	7,9	159
2003	359.763	29,6	481.469	125	5,8	168
2004	430.511	19,7	576.151	137	8,9	183
2005	487.202	13,2	652.020	147	7,4	196

Turkey: GDP and GNP in US\$

	Nominal GDP (Trillion TL/Billion YTL)		GNP	Average \$/TL	GNP (Billion \$)	% Change	Index
	Value	% of GDP					
1989	227	3,0	230	2.124	107	18,8	123
1990	393	4,1	397	2.609	151	40,8	173
1991	630	4,3	634	4.180	151	0,1	173
1992	1.093	10	1.104	6.881	159	5,4	183
1993	1.982	15	1.997	11.047	179	12,9	206
1994	3.868	19	3.888	29.818	130	-27,7	149
1995	7.762	92	7.855	45.846	169	30,5	195
1996	14.772	206	14.978	81.591	181	6,9	208
1997	28.836	557	29.393	152.438	189	4,5	218
1998	52.225	1.293	53.518	261.675	200	5,5	230
1999	77.415	868	78.283	421.076	184	-7,9	211
2000	124.583	1.013	125.596	625.208	199	8,4	229
2001	178.412	-1.928	176.484	1.228.367	145	-27,1	167
2002	277.574	-2.542	275.032	1.509.471	184	26,6	212
2003	359.763	-3.082	356.681	1.496.669	240	30,7	276
2004	430.511	-1.579	428.932	1.425.772	302	25,6	347
2005	487.202	-801	486.401	1.344.025	362	20,1	417

Real versus nominal GDP

- By definition, national income accounting is undertaken at actual (current) prices
- Nominal GDP values the production of goods and services at current prices
- But the price level changes from year to year, depending on inflation of the period
- In order to have a meaningful comparison of the income levels of two periods, we must adjust nominal GDP for inflation
- Real GDP values the production of goods and services at historical (constant) prices
- GDP deflator is a measure of inflation which allows the transformation of nominal GNP into real GDP

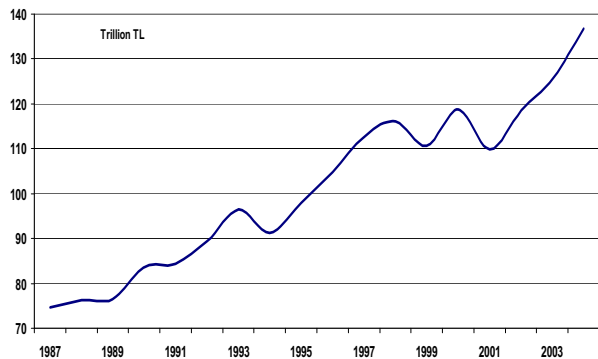
GDP deflator

- The GDP deflator measures the current level of prices relative to the level of prices in a base year
- The GDP deflator shows the rise in the price level from the perspective of GDP since the base year
- Therefore we can distinguish the rise in nominal GDP attributable to a rise in prices and that due to a rise in quantities produced

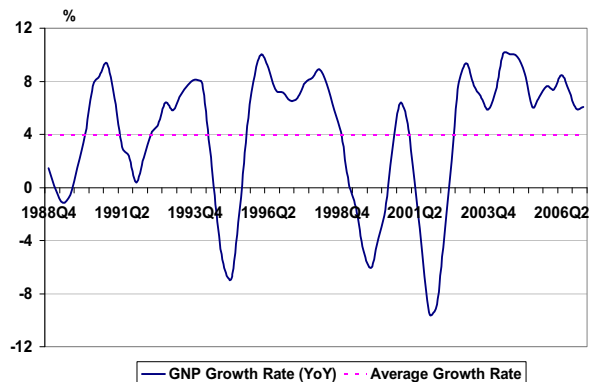
$$Real\ GDP_{19xx} = \frac{(Nominal\ GDP_{19xx})}{(GDP\ deflator_{19xx})} \times 100$$

$$GDP\ deflator = \frac{Nominal\ GDP}{Real\ GDP} \times 100$$

Turkey: GDP from 1987 to 2005



Turkey: GDP growth rate



International comparisons

- Comparing the income for the same country led us to the GDP deflator
- Comparing GDP per person for different countries also poses *measurement problems*
- One way is to convert nominal GDP to US\$ at the *actual exchange rate* of the local currency
- But the relative cost of different goods and services making up GDP varies enormously among countries
- A better method uses the price of a *basket* of goods and services in different countries
- It is called *Purchasing Power Parity* – PPP
- Poor countries have higher GDP per capita in PPP compared with actual exchange rates

World: GNP per capita

per capita, 2005	PPP, Gross National Income(1)	GNI-PPP as % of US	Gross National Income(2)	(1)/(2) %
US	41950	100	43740	96
Japan	31410	75	38980	81
Germany	29210	70	34580	84
Greece	23620	56	19670	120
Argentina	13920	33	4470	311
Russia	10640	25	4460	239
Mexico	10030	24	7310	137
Turkey	8420	20	4710	179
Brazil	8230	20	3460	238
China	6600	16	1740	379
Egypt	4440	11	1250	355
India	3460	8	720	481
Pakistan	2350	6	690	341
Bangladesh	2090	5	470	445
Nigeria	1040	2	560	186

GDP and economic well-being

- GDP is the best single measure of the economic well-being of a society
- *GDP per person* is obtained by dividing GDP by the population of that year
- GDP per person summarises the income and expenditure of the average person in the economy
- However, GDP is not a perfect measure of the happiness or *quality of life*
- Many important activities take place outside markets in a modern economy
- Typically, the value of leisure, the value of a clean environment, the quality of the public services, etc. are not included in GDP

Measuring the Quality of Life

	PPP \$ GNP per capita 2005	Life Expectancy at birth, years 2004	Mortality under 5 per 1000 2004	Illiteracy rate adult pop. % 2004	Fertility rate birth p. woman 2004	Fixed-Mobile phones per 1000 2004
US	41950	77	8	0	2,0	1.223
Japan	31410	82	4	0	1,3	1.176
Germany	29210	78	5	0	1,4	1.525
Greece	23620	79	5	4	1,3	1.465
Argentina	13920	75	18	3	2,3	579
Russia	10640	65	21	1	1,3	362
Mexico	10030	75	28	9	2,2	554
Turkey	8420	70	32	13	2,2	751
Brazil	8230	71	34	11	2,3	587
China	6600	71	31	9	1,8	499
Egypt	4440	70	36	29	3,2	235
India	3460	63	85	39	2,9	85
Pakistan	2350	65	101	50	4,3	63
Bangladesh	2090	63	77	59	3,0	37
Nigeria	1040	44	197	33	5,6	79

GDP gets lighter

- An increase in GDP and therefore welfare means more output and production
- But more production does not necessarily mean more tonnes of physical materials such as oil, coal, steel, wood, etc.
- Alan Greenspan, the famous chairman of the Federal Reserve Board points that US real GDP is today five times what it was 50 years ago
- Yet the physical weight of the GDP is only marginally higher compared with 50 years ago
- Office buildings, homes, cars, consumer durables, planes, etc. have all become lighter during this time with the discovery of synthetic new material

Who wins at the Olympics?

- Nations of all sizes compete at the Olympic games
- Normally, we expect medals to be distributed among them in proportion to their population
- China, India, Indonesia and Bangladesh has over 40 percent of world population
- But typically only 6 % of the medals at Olympics
- When we compare medals won by nations with their GDP we find a much stronger relation
- And some interesting exceptions
- The country hosting the games wins more medals
- Communist regimes devoted more resources to sports and received more medals than their GDP implied

Conclusion

- Macroeconomics study the economy as a whole
- Because every transaction in the market has a buyer and a seller, the total expenditure in the economy must equal the total income in the economy
- GDP is the market value of all final goods and services produced within a country in a given period of time
- GDP is divided among four major components of expenditure: consumption, investment, government purchases and net exports
- Nominal GDP uses current (actual) prices to value the production of the economy. Real GDP uses historical (base year) constant prices

Conclusion

- National income identity is very important:
 $Y = C + I + G + NX$
- GNP is obtained by adding net factor income from abroad to GDP
- International comparisons of GDP per capita at the current exchange rate fail to give meaningful results
- Purchasing Power Parity is a better measure of the standard of living among countries
- GDP is a good measure of economic well-being because people prefer higher to lower income
- But GDP is not a perfect measure of the quality of life because some things, such as leisure and clean environment is not measured by GDP

Measuring the Cost of Living

Chapter 24

Measuring inflation

- Inflation is a fact of life: very few exceptions aside, all economies in the world have some experience with inflation
- A small number of economies, among them Turkey, know very *high and persistent* inflation
- In this chapter, we take our first shot at inflation
- Explaining inflation will have to wait a little
- Now we shall look into *measuring inflation*
- We already encountered a measure of inflation with the GDP deflator
- Inflation is usually measured by the use of price indexes such as the *Consumer Price Index* and the *Producer Price Index*

Consumer price index – CPI

- The *consumer price index* (CPI) is a measure of the overall cost of the goods and services bought by a typical consumer
- It is used to monitor changes in the cost of living over time by the use of index numbers
- When the CPI rises, the typical family has to spend more TL to maintain the same standard of living
- In Turkey the consumer inflation is measured by *Tüketici Fiyatları Endeksi – TÜFE* – calculated by Türkiye İstatistik Kurumu (TÜİK)
- Other institutions, such as the ITO – Istanbul Chamber of Commerce – also calculates indexes to measure changes in cost of living

Calculating price indexes

- An index is a method for measuring change of a magnitude constituted by several independent items
- It means adding up the changes in individual items by giving each item a certain *weight* in the total
- Establishing the weights of different goods and services in CPI is achieved by fixing *a basket*
- The consumption basket is determined by TÜİK through a “*Consumer Survey*” of the population
- The current index is based on a consumer survey undertaken in 2003
- All the goods and services consumed by the typical household as observed in the survey during 2003 are in the basket

The cost of the basket

- DİE collects the prices from different retail outlets about the prices of the goods and services in the basket two or three times every month
- Thus obtains an *average price* of the month for each item
- Then multiplies each average price with its weight in the basket and adds them up
- In this way the *total cost* of filling up the basket in that month is calculated
- By comparing the cost of the basket this month with the previous month, or the same month a year ago, or that of the base period allows the calculation of inflation

Calculating CPI inflation

- Dividing the cost of the basket this month by the cost of the basket at base period and multiplying with 100 we obtain the *CPI index* for this month
$$\text{CPI index}_t = \frac{\text{Cost of Basket}_t}{\text{Cost of Basket}_B} \times 100$$
- Dividing the CPI index for this month with that of the previous month, then subtracting 1 and multiplying with 100 gives the *monthly* CPI inflation
$$\text{CPI inflation}_t = \left[\frac{\text{CPI index}_t}{\text{CPI index}_{t-1}} - 1 \right] \times 100$$
- The same operation can be done for the same month of previous year to get *annual* inflation

Same inflation, different figures

- In the short run, the key indicator of inflation is the *monthly* figure
- DİE publishes on the 3rd day of each month the inflation for the previous month
- Annual inflation* compares the change in prices in 12 months
- Year-end inflation* is annual inflation for the calendar year (January to December)
- Average annual inflation* is calculated by taking the average of the annual inflation figures of the last 12 months
- Monthly inflation can be very volatile while average inflation is more stable

Brief history of price indexes

- The first cost of living index for Istanbul calculated in 1914 covered 26 goods
- Istanbul Chamber of Commerce (İTO) began publishing the *Wholesale Price Index* covering 59 goods in 1929
- The first *Consumer Price Index* by State Institute of Statistics (DİE) started in 1955 for *Ankara*
- Base years were changed in 1968, 1978, 1987, 1994 and 2003 with improved coverage
- The *Wholesale Price Index* by DİE began in 1981
- WPI base year changed in 1987 and 1994
- Producer Prices Index* PPI with 2003 as base year replaced WPI in 2005

Composition of the CPI basket

	WEIGHT (%) (2003)	WEIGHT (%) (1994)
CPI	100,0	100
Food and Beverages	29,4	31,1
Clothing	8,1	9,7
Housing	16,9	25,8
Houseware	6,5	9,3
Health	2,7	2,8
Transportation	10,4	9,3
Communication	4,8	-
Entertainment	3,6	2,9
Education	2,2	1,6
Restaurants	5,9	3,1
Miscellaneous	4,9	4,4

Details of CPI index

- TÜİK publishes other details of the CPI index
- *Subdivisions* of major categories: for example “Food and Beverages” is divided into three: Food, Beverages, Cigarettes and Tobacco
- *Regional indexes*: separate indexes for many cities : Istanbul, Ankara, İzmir, etc.
- Different *income groups*: wage earners, rural households, etc.
- Developed economies also publish detailed local CPI figures such as “white collar employees in county X”
- Or “CPI excluding food”, “CPI excluding energy”, “CPI excluding rent” etc.

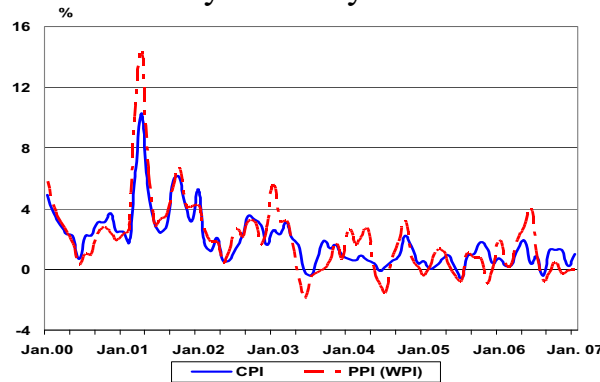
Producer Price Index

- All economies use a second index to measure business inflation: “*Producer Prices Index – PPI*”
- Turkey calculated the Wholesale Price Index – WPI (*Toptan Eşya Fiyatları Endeksi – TEFE*) until 2005
- Producer Prices Index (*Üretici Fiyatları Endeksi – ÜFE*) was introduced in January 2005
- It estimates the change in the prices charged by their producers for a representative basket of goods
- The basket is established through surveys and the base year is the same as CPI (2003)
- It has five major categories: agriculture (20.23 %), Fishing (0.42 %), Mining (1.51 %), Manufacturing (72.07 %) and Energy, Gas & Water (5.77 %)

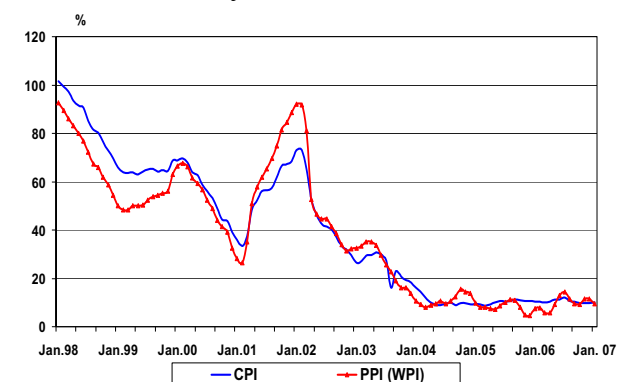
Comparing PPI and CPI

- In principle CPI includes only *final goods* bought by consumers and PPI has only *intermediate goods*
- Bread, cheese, shirts, socks, skirts, ties are in CPI
- Wheat, flour, milk, yarn, cloth, etc. are in PPI
- Newspapers, cigarettes are in CPI, print paper and tobacco are in PPI
- CPI has a large service and rent component (more than 50 %)
- Eating at a restaurant, going to a movie, visiting a doctor, taking a bus are only in CPI, there are no services in PPI
- Renting a house is in CPI, but renting an office is not in PPI

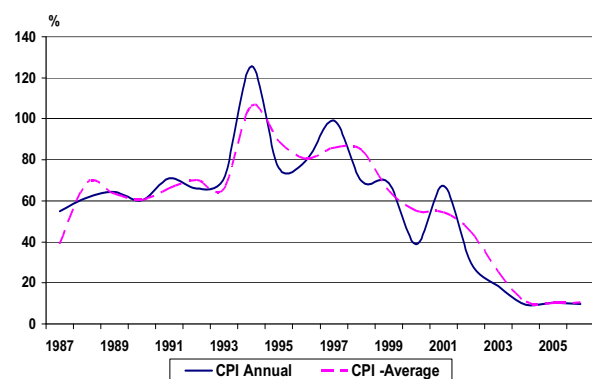
Turkey: monthly inflation



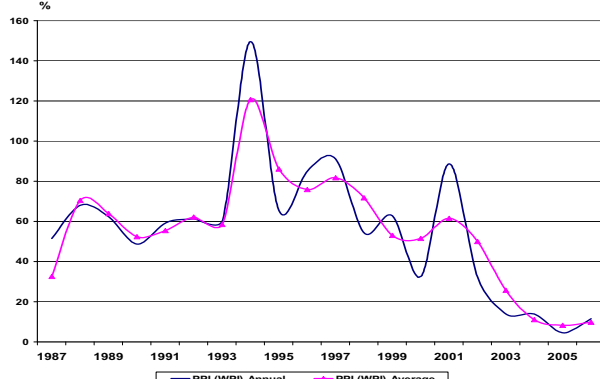
Turkey: annual inflation



Turkey: average and annual CPI



Turkey: average and annual PPI



CPI details: January 2007

EN YÜKSEK ARTIŞ	AYLIK %	YILLIK %	EN AZ ARTIŞ	AYLIK %	YILLIK %
Domates	60,1	141,0	Fındık içi	1,0	-35,8
Sivri biber	41,1	-9,9	Bal	0,8	11,2
Yumurta	23,9	130,5	Hazır çorbalar	0,5	15,8
İspanak	12,1	28,9	Koyun eti	0,3	3,4
Karabıbahar	10,9	43,4	Zeytin	-0,5	2,4
Taze balıklar	7,9	9,3	Mücevher	-0,6	23,8
Elma	7,5	52,9	Bisküvi	-0,9	6,5
Patates	5,4	-1,2	Sabun	-1,1	9,7
Sosis	3,5	15,0	Antep fıstığı	-1,1	5,5
Krem peynir	3,2	3,3	Tavuk eti	-2,2	14,5
Pideler	2,8	14,9	Erkek ayakkabısı	-2,4	1,9
Sağa	2,3	26,8	Portakal	-2,7	16,2
Mısrözü yağı	2,0	8,9	Benzin	-2,9	1,8
Margarin	1,7	11,7	Greyfurt	-3,5	11,9
Pirinç	1,7	7,5	Zeytinyağı	-3,6	4,2
Süt	1,5	11,7	Mazot	-4,3	4,0
Yoğurt	1,4	4,1	Takım elbise	-9,7	-0,5
Çamaşır deterjanı	1,3	15,0	Erkek kazağı	-10,3	-0,4
Mağama	1,1	15,2	Pafto	-10,8	0,1
Kömitür ticreti	1,1	26,0	Etek	-12,4	4,8

PPI details: January 2007

EN YÜKSEK ARTIŞ	AYLIK % YILLIK %	EN AZ ARTIŞ	AYLIK %	YILLIK %	
Hamsi	76,6	-17,5	Giyim için pamuklu mensucat	-0,5	-10,8
Yakacak odun	40,9	47,6	Soğan (kuru)	-0,6	16,6
Deri el çantaları	23,7	9,3	Zeytin	-1,0	-3,3
Giyim için suni iplik dokumalar	21,6	38,5	Bulaşık deterjanları	-2,0	11,2
Soğan (taze)	15,0	61,1	Tavuk eti	-2,5	17,9
Alüminyum folyo	14,5	28,7	Kuru incir (paketlenmiş)	-2,9	17,2
Beş yaş peynir	13,3	20,3	Televizyon alıcıları (55 ekran)	-3,4	-4,8
Piknik tipi LPG tüpleri	12,3	16,5	Greyfurt	-3,5	34,0
Ham petrol	11,6	23,5	Bayan için deri yüzüğü çizme ve botlar	-4,3	5,9
Marul (kavırık)	8,5	44,3	Erkek gömlekleri	-4,4	8,3
Yumurta	7,7	43,2	Taramış yün iplikler veya ince killardan iplikler	-6,1	3,3
Limon	5,1	10,3	Fuel-oil no.6	-6,3	3,2
Ayçiçeği	4,0	13,0	Tabakalanmış ve parşömüne edilmiş koyun ve kuzu derileri	-6,7	-15,7
Pastörize süt	3,3	4,5	Portakal	-7,2	20,8
Çiğura	3,2	-2,2	Kurşunsuz motor benzini (95 oktan)	-7,9	-0,7
İspanak	2,7	19,9	Bakır ve bakır alaşımlarından sac, levha, yaprak ve şeritler	-8,3	40,9
Ev tipi buzdolabı (300 litreten küçük)	2,4	46,7	Motorin	-10,9	0,2
Patates	2,3	0,8	Kombi (bacalı)	-11,5	-1,3
Margarinler	1,8	7,4	Bakar ve bakır alaşımlarından çubuklar ve profiller	-13,5	39,3
Buğday unu	1,6	8,8	İstavrit (karaça)	-18,1	-23,7

Problems in measuring inflation

- Indexes are accurate measures of the selected goods and services that make up the typical bundle, but they are not necessarily perfect measures
- The previous CPI index (base year 1994) had serious problems
 - 1994 was a crisis year in Turkey with unusually low spending for many items
 - CPI had a high weight for rent (20 %) but rented housing is not widespread in Turkey
- There are also *systematic problems* with indexes
 - Substitution bias
 - Introduction of new goods
 - Unmeasured quality change

Substitution bias and new goods

- *Substitution bias*: once fixed, the basket does not change to reflect the reaction of consumers to changes in relative prices
- Consumers substitute towards those goods that become relatively less expensive
- The index overstates inflation by not considering this substitution by consumers
- *Introduction of new goods*: again the basket does not include goods introduced after base year
- Often, the price of new goods fall very fast in early days: like mobile phones and computers
- Changing the basket as often as possible, ideally every year, solves these problems

Unmeasured quality changes

- If the quality of the good rises from one year to the next, the real value of our money increases even if the price of the good remains constant
- Alternatively, the price of good may rise from one period to another but with a corresponding improvement in quality
- Measuring *quality changes* is an even more difficult problem for services such as health care
- Think of a new bus service with air conditioning but higher price: is it inflation or better service?
- Research in the US found out that CPI overstates the increase in cost of living by about 0.5 to 2 percentage points per year

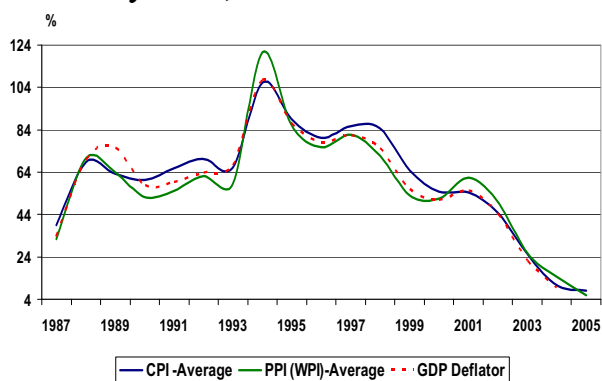
Error in measuring inflation

- The accuracy of price indexes in measuring inflation is currently debated in Turkey
- Along with the fall in TÜFE came complaints about its composition and relevance
- Most people believe that inflation is higher than captured by the TÜFE
- Recently published research by Dr.Güntaş Özler on household spending habits shows the opposite
- Due to the substitution effect
- Substitution effect was strongest during the crisis year of 2001
- Actual inflation was 23.8 % less than TÜFE
- TÜFE overestimated consumer inflation in Turkey

CPI and the GDP deflator

- Economists and policymakers use both the CPI and the GDP deflator to analyse inflation
- There are important differences between the two
- *Consumer Price Index*
 - includes only consumer goods,
 - includes imports
 - is measured using a fixed basket
- *Gross Domestic Product deflator*
 - includes all goods and services domestically produced
 - excludes imports,
 - is measured using currently produced goods and services

Turkey: CPI, WPI and GDP deflator



Correcting for inflation

- You often hear parents saying something like “we bought this flat for 150.000 TL in 1970” and wonder about how much it was worth today
- Even at low levels of inflation such as 2-3 % per year, over long periods of time the purchasing power of money changes substantially and needs to be corrected for comparisons
- Price indexes are used to make this correction by *inflating* the original price to current prices

$$Price_{2002} = Price_{1970} \times \frac{Price\ Index_{2002}}{Price\ Index_{1970}}$$

Indexation

- Price indexes are widely used in the economy to correct for the effects of inflation
- If a payment is *automatically corrected* for inflation by contract or by law, the payment in question is said to be *indexed* to inflation
- Recently, the government indexed pensions of Social Security (SSK emeklileri) to CPI: it means pensioners automatically get an increase equal to the CPI change of previous month
- The tax system is also indirectly indexed to annual inflation with changes in tariffs
- High inflation countries have developed sophisticated indexation systems but not in Turkey

Real and nominal interest

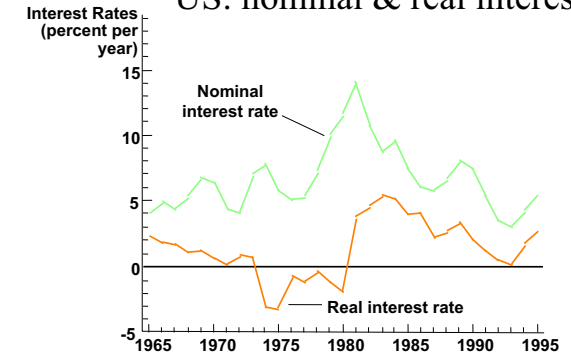
- It is very important to correct interest rates for inflation
- *Nominal interest rate* is the actual interest rate that we see in the market place
- *Real interest rate* is corrected for inflation
- Assume nominal interest rate is 14 % p.a. and annual CPI inflation is 8 %
- For 1.000 YTL, after one year you get 1.140 YTL with interest but your 1.000 YTL has in the meanwhile became 1.080 YTL with inflation
- Your real interest is only 60 YTL, the rest of the interest you received (80 YTL) goes to offset your loss from inflation

Calculating real interest rate

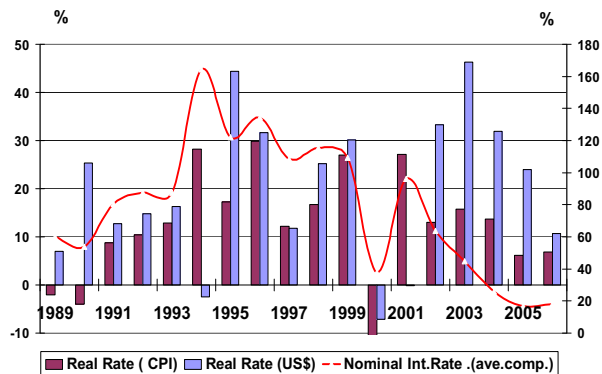
- How do you calculate the real interest rate?
- For low inflation (below 10 % p.a.) a simple rule is: $\text{Real interest rate} = \text{nominal interest rate} - \text{inflation}$
- For example, if inflation is 3 % and the nominal interest rate is 6 %, the real interest rate is 3 %
- At higher inflation this rule is not applicable.
- Let us call r = real interest rate, i = nominal interest rate and π = inflation rate, all in percentages
- The *full formula* becomes:

$$r = \left[\frac{1 + i}{1 + \pi} - 1 \right] \times 100$$
- For $i = 14\%$ and $\pi = 8\%$ we get $r = 5.6\%$
- $r = (1.14 / 1.08) - 1 = (1.056 - 1) \times 100 = 5.6\%$

US: nominal & real interest



Turkey: nominal & real interest



Conclusion

- Inflation is measured by the price indexes
- Indexes work by comparing the total cost of a basket of goods and services during one period with the cost at a base year
- In Turkey, Türkiye İstatistik Kurumu (TUIK) calculates two major price indexes
- Consumer Price Index – CPI (Tüketici Fiyatları Endeksi – TÜFE)
- Producer Price Index – PPI (Üretici Fiyatları Endeksi – ÜFE)
- The base year for the both is 2003 when a consumer survey has established the weights of the index

Conclusion

- Indexes are not perfect measures
- The accuracy of price indexes are limited by
 - errors of base year or basket composition,
 - substitution bias
 - the introduction of new goods
 - quality changes in products
- CPI is used in order to compare purchasing power in two distant periods
- By inflating the old price to current price level
- Nominal interest rates need to be adjusted for inflation
- To obtain real interest rates

PART IX: THE REAL ECONOMY IN THE LONG RUN

Production and Growth

Chapter 25

Real economy in the long run

- We begin macroeconomic analysis with the real economy in the long run
- By *real economy* we mean magnitudes such as the growth rate of the GDP, the level of saving and investment and their relation with the real interest rate, plus employment and unemployment
- The *long run* allows us to abstract any short run fluctuations in output, employment, interest rate, etc.
- *Money* and therefore nominal variables will be introduced in Part X, followed by the characteristics of the *open economy* in Part XI
- After understanding the long run Part XII will explain the *short run fluctuations* in output

Plan of Part Nine

- Ch.25 deals with *production of goods and services* from macroeconomic perspective and the factors that influence the growth of output in the long run
- Ch.26 looks at the *financial system* that coordinates the saving and investment decisions of economic agents through the loanable funds market
- Ch.27 is a first approximation to the *basic tools of finance* such as present value and the concept of risk
- Ch.28 develops the main concepts related to *employment and unemployment* in the long run
- In Part IX, we assume a *closed economy* with a government and a financial system but *without* the complications caused by money

Production and growth

- When we look at the world around us, we see tremendous variations in the *standard of living* among different countries and periods
- The standard of living in a country depends on its ability to *produce goods and services*
- We observe large changes in the standard of living *over time* within every country as reflected in the real GDP
- Living standards, as measured by real GDP per person also varies significantly *among nations*
- Our first task is to understand the causes and consequences of the variations in the level of production over time and among nations

Growth in the world

- Economic growth in the world accelerated in 19th century as a result of *industrial revolution* that took place in Western Europe, especially in England
- There were already *big differences* in real GDP per capita among nations at the end of 19th century
- Large differences in growth rates in the 20th century resulted in *bigger gaps* between those who grew fast and those who grew slowly
- Some countries today have *lower GDP per capita* than the US and UK did at the end of 19th century
- Some countries like Japan *moved up*, while others like UK and Argentina *moved down* in the world league of real GDP per capita

World: growth in the long run

COUNTRY	PERIOD	Real GDP per person at start	Rank at 1900	Real GDP per person at end	Rank at 2000	Growth rate p.a. (%)
Turkey	1927 - 2000	1.287	-	5.830	-	2,11
Japan	1890 - 2000	1.256	6	26.460	3	2,81
Brazil	1900 - 2000	650	9	7.320	8	2,45
Mexico	1870 - 2000	968	7	8.810	7	2,23
Canada	1870 - 2000	1.984	3	27.330	2	2,09
Germany	1870 - 2000	1.825	5	25.010	4	2,03
China	1900 - 2000	598	11	3.940	9	1,90
Argentina	1900 - 2000	1.915	4	12.090	6	1,86
United States	1870 - 2000	3.347	2	34.260	1	1,81
India	1900 - 2000	564	12	2.390	11	1,45
United Kingdom	1870 - 2000	4.107	1	23.550	5	1,35
Indonesia	1900 - 2000	743	8	2.840	10	1,35
Pakistan	1900 - 2000	616	10	1.960	12	1,16
Bangladesh	1900 - 2000	520	13	1.650	13	1,16

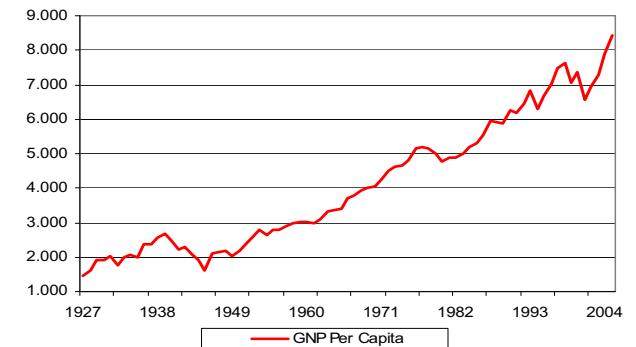
Economic growth in Turkey

- Data for the period before 1923 is not available or when available not meaningful and reliable
- Turkey's real GNP average annual growth rate from 1923 to 2003 (80 years) is 4.3 %
- But Turkey's population also grew on the average by 2.3 % annually from 1927 to 2003
- This gives us a secular (=long run) average annual growth rate of 2.1 % for real GDP per capita
- This figure corresponds neither to an economic miracle as in Japan, Korea, Taiwan, etc. or to a relative economic decline like in Argentina, UK nor to stagnation like in Pakistan, Bangladesh, etc.
- Next is a *summary* of Turkey's growth history

Turkey: growth in the long run

Period	GNP	Population	Per Capita GNP	Comments
1923-2005	4,3	NA	NA	No population before 1927
1927-2005	4,4	2,3	2,1	Including war years
1927-1950	2,6	1,8	0,8	Including war years
1929-1939	5,8	2,1	3,7	Reconstruction and "etatism"
1939-1945	-6,0	1,2	-7,2	Economic price of war
1945-1950	6,3	2,1	4,0	Post-war recovery
1950-2005	4,6	2,3	2,2	Democracy, coup d'etat, crisis, etc.
1950-1960	5,8	2,8	2,9	Menderes transforms the economy
1960-1970	6,0	2,5	3,4	Demirel and planned economy
1970-1980	4,4	2,3	2,0	Populism and crisis
1980-1990	5,3	2,4	2,8	Özal opens the economy
1990-2000	3,8	1,8	1,9	Wasted decade
2000-2005	5,1	1,4	3,6	Disinflation and reforms

Turkey: real GNP per capita



How rich was Rockefeller?

- Comparing per capita income in the very long is not very meaningful (FYI p.540)
- Adjusted for inflation, *John.D.Rockefeller* (1839-1937) is the richest American who ever lived
- His wealth was US\$ 200 bill. in 1998 prices, substantially higher than Bill Gates of Microsoft
- Yet Rockefeller didnot enjoy many of today's conveniences such as cell phones, TV, anti-biotics, air travel, internet, etc. during most of his life
- Can we claim that *Sultan Suleyman*, the most powerful man in the Ottoman empire, was richer than a middle class family in 2005?
- Qualitative improvements are difficult to measure

Productivity and real GDP

- We must focus on the production of goods and services to understand the large differences in living standards across countries and over time
- *Productivity* is the key determinant of living standards
- Productivity refers to the quantity of goods and services that a worker can produce from *each hour of work*
- Countries with higher real GDP per capita have, by definition, *higher average productivity* per worker
- It is because their working population produce *more goods and services* in a given period that they have higher real GDP per capita

Understanding productivity

- Productivity is first and foremost a *physical concept*
- Higher productivity implies *more* tons of wheat, number of cars, number of TV sets, etc. produced by each working person
- Higher physical output per worker translates itself into higher value added and therefore higher real income per capita
- There is no magic behind economic development: citizens of rich countries are *rich* because they produce *more* goods and services
- Rapid growth in real GDP per capita corresponds to big increases in the productivity per working person

Misconception about productivity

- The simple logic of productivity is not always understood properly
- Productivity is not about *what* you produce but about *how efficiently* you produce it
- Take a small country like Switzerland with a population of 7 million and real GDP per capita (PPP) of 30.350 US\$ (second in rank after US)
- It has no military power, no car industry, no computer industry: among many other things, it exports *milk, chocolate, drugs, watches* and has large tourism and banking sectors
- Swiss are rich because they produce non-exotic goods and services with *very high productivity*

Factors of production

- To establish what determines productivity in the economy we need to look into the details of the production process
- Output is produced by inputs
- The inputs used to produce goods and services are called the *factors of production*
- We are familiar with these from microeconomics
- We will underline *four* basic factors of production:
 - Physical capital
 - Human capital
 - Natural resources
 - Technological knowledge

Capital as a factor of production

- Capital has an interesting peculiarity as a factor of production because it is a *produced factor of production*
- It is an input into the production process that in the past was an output from the production process
- Physical capital is the stock of *machinery, equipment and structures* that are used to produce goods and services, such as
 - The machinery in oil refineries, steel mills, power plants
 - Tools used to repair automobiles or to build homes
 - Office buildings, schools, dams, TV towers, etc.

Human capital

- *Human capital* is the term used by economists to define the knowledge and skills that working persons in an economy acquire through education, training and experience
- *Education* constitutes the most important element in human capital
- Longer and better education of the citizens increase their ability to undertake complex tasks required in the production process
- *Training* usually takes place during working life and in firms
- Like physical capital, human capital raises a nation's capacity to produce goods and services

Education and incentives

- Increasing the number of years children spend in school is vital for human capital (ITN p.548)
- Most nations have compulsory education laws up to age 14 or more
- These are usually difficult to enforce and poor parents prefer to send their children to work
- *Gary Becker* won the Nobel prize in economics because of his pioneering work on human capital
- He proposes financial incentives to poor parents as a better method for ensuring school attendance
- The title of his article is telling
- “Bribe third world parents to keep their children in schools”

Natural resources

- *Natural resources* are inputs used in production that are provided by nature, such as agricultural land, rivers, mineral deposits, forests, etc.
- Natural resources can be divided into two major categories
 - *Renewable*: trees, forests, hydroenergy
 - *Nonrenewable*: petroleum, coal, other minerals
- Having a large natural resource base can be an advantage but it does not lead automatically to high productivity
- Some rich countries are poor in natural resources (Denmark, Singapore) while some poor countries are rich in natural resources (Brazil, Russia, Iraq)

Technological knowledge

- Technological knowledge is the understanding of the *best ways to produce* goods and services
- Technological knowledge is related to but different from *basic science*
- A country may be well advanced in basic science and produce many high-tech products but still have low real GNP per head (*Soviet Union* and *India* are good examples)
- Producing good wine (France), expensive shoes (Italy), quality cars (Germany) also correspond to advanced technological knowledge
- Human capital refers to the resources expended to transmit the technology to the labour force

The production function

- A *production function* describes the relationship between the quantity of inputs used in production and the quantity of output from production
- Macroeconomic production function becomes

$$Y = A F (L, K, H, N)$$
 - Y = quantity of output
 - A = available production technology
 - L = quantity of labour
 - K = quantity of physical capital
 - H = quantity of human capital
 - N = quantity of natural resources
- *F* is a function that shows how the inputs are combined (FYI p.543)

Returns to scale

- *Scale economies* are about output changes when all the inputs are increased by the same proportion
- A production function may have increasing, decreasing or constant returns to scale
- A production function has *constant returns to scale* if, for any positive number *x*

$$x Y = A F (x L, x K, x H, x N)$$
- Under constant returns to scale, we can rewrite the production function in per worker terms by setting $x = 1/L$

$$Y/L = A F (1, K/L, H/L, N/L)$$
- *Output per worker* is a function of the quantity of non-labour factors of production per worker

Does nature limit to growth?

- World has a much bigger population now thanks to increases in the standard of living and therefore uses more natural resources than in the past (CS p.544)
- An *important debate* evolves around this issue
- Natural resources are limited yet population and use of natural resources grows *exponentially*
- Environmentalists and conservationists fear and claim that we are using *too much natural resources* and soon there will be left none
- Economists counterargue that as something gets scarce, *its price will go up*, leading to changes in technology and tastes and habits that will imply less consumption of it

Public policy toward growth

- Governments can do many things to raise productivity and living standards in the long run
- The list below is not exhaustive but highlights those areas where *public policy* is most effective
 - Encourage *saving and investment* (more K)
 - Encourage *education and training* (more H)
 - Establish secure *property rights* and maintain *political stability* (improves A, K, H)
 - Create an *hospitable environment* for foreign investment (more K, better A, H)
 - Promote *free trade* (improves A, K, H)
 - *Control* population growth (less L)
 - Promote *research and development* (better A)

More saving, more investment

- One sure way of raising future productivity and increasing the long run average growth rate is to *save and invest* a larger part of current output in physical capital stock
- Domestic savings, foreign savings in the form of Foreign Direct Investment (FDI) and foreign debt are the sources of investment in capital stock
- Governments can do many things to encourage capital accumulation, mainly through policies that increases *domestic savings*
- The *rule of thumb* is simple: the more a country saves from current output, the higher will be the growth rate of its output in the long run

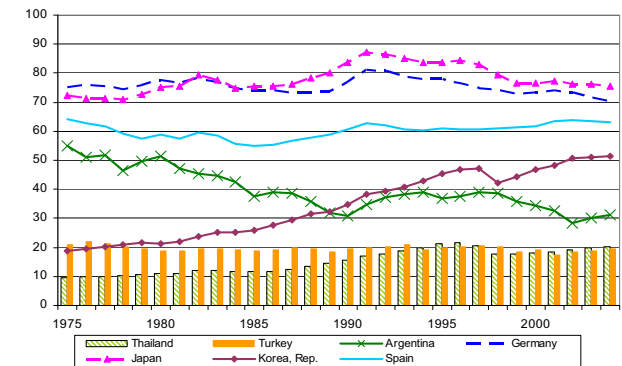
Saving and growth

(%)	Average Growth Rate of GDP per capita 1960-91 (%)	The share of investment spending in GDP 1960-91 (%)
South Korea	7,0	24,0
Singapore	6,7	32,0
Japan	5,4	34,0
Israel	3,3	26,0
Canada	2,7	24,0
Brazil	2,6	19,0
West Germany	2,6	27,0
Mexico	2,4	16,0
Turkey	2,3	20,6
UK	2,1	18,0
Nigeria	2,0	13,0
US	1,9	22,0
India	1,5	14,0
Bangladesh	1,4	4,0
Chile	1,3	20,0
Ruvanda	1,2	4,0

Catch-up effect

- Remember from microeconomics: as the stock of capital rises, the extra output produced from an additional unit of capital invested falls
- This property of the production function is called *diminishing returns*
- At low real GDP per capita levels, higher savings imply *much higher* average growth rates for the economy
- But, as real GDP per capita goes up, benefits from additional capital become smaller and the growth rate *slows down*
- *Catch-up effect* summarises this characteristic of the growth process

Per capita GDP relative to US PPP current US\$



Education and training

- The *general level of education* of the population is at least as important capital accumulation for the average growth rate of a country
- Growth and development process consists of moving people from *low productivity* (low value added) employment to *high productivity* (high value added) employment
- Jobs with higher value added always require *more skills* from the workers
- The length of minimum compulsory education or *average education* are good indicators of the level of productivity of the population
- *Government* is responsible for education

Institutions and property rights

- Recent research highlighted the quality and efficiency of the institutions in development
- *Property rights* refers to the ability of the people to exercise authority over the *resources they own*
- An impartial and effective *legal system* is an important prerequisite for the market economy and price system to work efficiently
- *Weak law enforcement* hurts property rights and therefore economic growth
- For growth to happen, investors must feel *secure* about the future of their investment
- *Political stability* creates an investment-friendly environment

Foreign direct investment

- *Foreign direct investment* – FDI – can be an important force to promote faster economic growth
- First, it allows an *increase in investment* without the additional burden caused by higher saving (less consumption) from current output
- Second, it reduces the need to *earn foreign exchange* to pay for imports
- Third, it brings very valuable *technological and managerial skills* to the domestic economy
- Fourth, it increases domestic competition and therefore *efficiency of factor use*
- Usually governments *compete* to attract more FDI inflows into their country

Exports and free trade

- Foreign trade allows countries to exploit their *comparative advantages* and increase production and efficiency
- *Export-orientation* encourages the production of goods and services for foreign markets and interaction with other economies
- *Inward-orientation* encourages the production of goods and services for domestic market and discourage interaction with other economies
- Turkey had adopted an *inward-looking industrialisation* regime before up to 1980
- *Export-oriented trade policy* is the common characteristic of “economic miracle” countries

Population growth

- *Population* is a key determinant of a country’s labour force
- Countries with large populations have large total GDP
- *Big domestic markets* resulting from large population can be an advantage for growth
- But, fast population increase *reduces* the average growth rate of real GDP per person
- Very high numbers of young requires scarce resources to be *diverted* from capital formation to education and human capital
- *Controlling population growth* improves growth performance for poor countries

Malthus on population

- English economist *Robert Malthus* (1766-1834) is known for his theory on population
- Malthus claimed that whereas agricultural output grows in *arithmetic progression*, like 1, 2, 3, 4, ... , population grows in *geometric progression*, like 1, 2, 4, 8, ...
- He therefore expected any increase in the standard of living to cause an explosion of population and eventually lead *mankind to misery*
- Malthus’ predictions did not come true
- In the last two centuries, real incomes in the world *increased substantially* despite much larger world population

Research and development

- For *very poor countries*, scientific research may be a luxury because they benefit from the catch-up effect
- Resources will be used more efficiently by *imitating* the rich countries
- But, for middle- and high-income countries, the advance of technological knowledge is *the only road* to higher standards of living
- Technological advancement comes from both *private firms* and *public agencies*
- *Basic science* is usually funded by government
- *Public policy*, in the form of research grants, tax breaks and the enforcement of patent laws encourage the development of new technologies

The plight of Africa

- Growth and development is *not evenly distributed* among continents and regions (ITN p.556)
- *Africa’s* growth performance was especially bad in the second half of the 20th century
- Political instability, military takeovers, civil wars, famine *prevented* the creation of an environment for favourable to economic development
- *AIDS and other diseases* hurt Africa more than any other continent or region of the world
- Some parts experienced decades of *falling real GDP per head*
- Much needs to be done to reverse this trend and put African countries on the road to economic growth

Conclusion

- Living standards as measured by real GDP per person vary substantially from country to country
- In the past, some countries experienced very high growth rates while others had much lower and few even negative growth rates
- Productivity is a key concept in understanding differences in living standards
- Differences in average productivity per worker explain the differences in living standards among countries
- The production function summarises the factors that influence the level of the production of goods and services

Conclusion

- Savings from current output allows capital accumulation
- Domestic savings are the main source of investment
- Education and human capital are very important
- Natural resources contribute to production but it is possible to grow without a rich natural resource base
- Government policies and actions can facilitate or impede economic growth
- Property rights and political stability creates an environment favourable to economic growth
- Export orientation and free trade, encouraging foreign direct investment and technological innovations help a country increase its growth rate

Saving, Investment and the Financial System

Chapter 26

Capital accumulation and finance

- In Chapter 25 we saw the close link between the growth of real GDP and *capital accumulation*
- Capital stock increases by *saving and investing* a part of the current output of the economy
- The *financial system* is crucial to this process
- Those who save in the economy are not necessarily those who invest
- As a rule, many *households and firms* spend less than they earn: in other words, they save
- *Others* spend more than they earn: i.e. they invest
- *Without* a financial system, accumulation of capital and improvements in living standards would be very difficult in a market economy

The financial system

- The financial system consists of institutions that *coordinate* the actions of savers and investors
- Its function is to move the economy's scarce capital resources from those who save to those who borrow and invest
- Altogether financial activities directly account for 4 to 5 % of GDP in developed market economies
- The share of financial activities Turkey's GDP in 2004 is 4.7 %
- The financial system consists of *three parts*
 - Financial markets
 - Financial intermediaries
 - Public bodies regulating financial institutions

Markets and intermediaries

- *Financial markets* are made of institutions through which savers can provide funds directly to borrowers
 - Bond market
 - Stock market
- *Financial intermediaries* are those institutions through which savers can provide funds indirectly to borrowers
 - Banks
 - Mutual funds
- Leasing and factoring companies are financial intermediaries
- Brokerage houses (Menkul Değerler Şirketleri) are financial market institutions

Regulation of the financial system

- Money is a very sensitive product, easy to abuse
- Therefore, financial systems are everywhere very heavily regulated by governments
- Those *public bodies* which supervise financial institutions are part of the financial system
- We distinguish four institutions in Turkey:
 - The Central Bank (*Türkiye Cumhuriyeti Merkez Bankası TCMB*)
 - Treasury (*Hazine*)
 - Bank Regulation and Supervision Agency (*Bankacılık Denetleme ve Düzenleme Kurulu BDDK*)
 - Capital Markets Board (*Sermaye Piyasası Kurulu SPK*)

The bond market

- *A bond* is a certificate of indebtedness that specifies obligations of the borrower to the holder of the bond
- Characteristics of a bond
 - *Term*: the length of time until maturity
 - *Credit risk*: the probability that the borrower will fail to pay some of the interest or principal
 - *Tax treatment*: how income from bond is taxed
- In developed economies, issuing bonds is a major source of finance for private corporations as well as central and local government
- In Turkey the bond market is fully dominated by *Treasury bonds* (T-bills) and private company bonds are almost nonexistent

The stock market

- *Stock* is a claim to partial ownership in a firm
- The sale of stock by firms to raise funds is called *equity financing*
- Compared to bonds, stocks offer *higher risk* but also potentially *higher returns*
- Bond holders receive interest on their capital independent of the profitability of the borrower
- Stock holders receive dividends only if the firm makes and distributes profits
- All major financial centers have *stock exchanges*: New York, London, Tokyo, Frankfurt, Paris, etc.
- Istanbul Stock Exchange (*İstanbul Menkul Değerler Borsası İMKB*) is a new but growing stock market

Banks

- *Banks* take deposits from households and firms who wish to save and make loans to households and firms who wish to borrow
- Banks pay *interest* to depositors and charge slightly higher interest to borrowers on their loans
- Banks help create a *medium of exchange* by allowing depositors to write checks against their deposits
- Two *state banks* (Ziraat and Halk) and four *private banks* (Garanti, İş, Ak and Yapı Kredi) make up a large part of the banking system
- Total deposits in the banking system is about 50 percent of GDP

Mutual funds

- *A mutual fund* is an institution that sells shares to the public and uses the proceeds to buy a selection - or *portfolio* - of various types of stocks, bonds, or both
- Mutual funds allow people with small amounts of saving to diversify and try to benefit from the advantages of the stock exchange
- In Turkey the equivalent of mutual funds is called investment funds (*yatırım fonları*)
 - *A-type funds* have at least 25 % of their portfolio in stocks
 - *B-type funds* have mainly bonds and REPOs
 - *REPOs* are short maturity transactions that involve purchase and repurchase of T-bills

Back to national income identity

- Recall that GDP is at the same time
 - *total income* produced in the economy
 - *total expenditure* on the economy's output of goods and services
$$Y = C + I + G + NX$$

$$Y = C + S + T + NX$$
- From now on, we will assume a *closed economy*, in other words delete *NX* from both identities

$$Y = C + I + G$$

$$Y = C + S + T$$
- In the closed economy, national income is either consumer, or saved, or paid as taxes to the government

Saving and investment

- Total income in the economy after paying for consumption and government purchases is called *national saving* or just saving
- By definition, in a closed economy *national saving is equal to investment*

$$I = Y - C - G$$

$$I = S$$

$$S = (Y - T - C) + (T - G)$$

$$S_p = (Y - T - C) = \text{private saving}$$

$$S_g = (T - G) = \text{public saving}$$
- National saving = income – private consumption – public consumption
- National saving = private saving + public saving

Private and public saving

- *Private saving* is the amount of income left to households after paying for taxes and for consumption

$$\text{Private saving } S_p = (Y - T - C)$$
- *Public saving* is the amount of tax revenue left to the government after paying for its spending

$$\text{Public saving } S_g = (T - G)$$
- $(T - G)$ can be seen as the budget balance of the government
- Budget deficit makes S_g negative while budget surplus makes it positive
- Notice that by definition national saving is calculated *after* we add government deficit/surplus

Effects of budget deficit

- It is very important to understand the interrelation between saving, investment, taxes and government purchases for the closed economy
- If the budget is *in balance*, then $(T - G) = 0$ and national saving and therefore investment is equal to private saving

$$S = S_p = I = Y - C \text{ for } T = G$$
- If the budget has a *deficit*, then $(T - G) < 0$ and private saving is bigger than national saving and investment

$$S = I = S_p + (T - G) \text{ for } (T - G) < 0$$
- A budget *surplus* in turn allows national saving and therefore investment to be higher than private saving

The market for loanable funds

- Saving and investment decisions in the economy are coordinated in the *market for loanable funds*
- Financial markets work much like other markets in the economy
- The *supply and demand* for loanable funds determine the equilibrium *real interest rate*
- Attention: in daily language, saving and investment have other meanings compared with economics
- Deposits in the bank or buying T-bills, considered as “investment”, is *saving* to economists
- For the economist, investment is the act of adding machinery, equipment or structures to the *capital stock* of the economy, not buying a T-bill

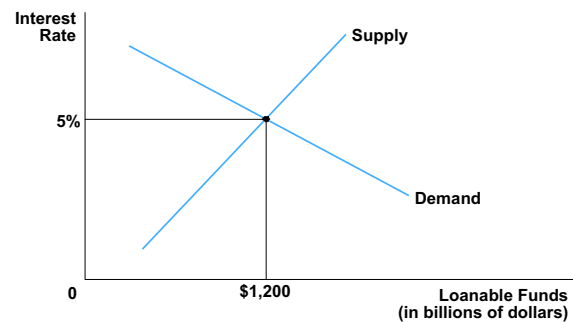
Supply and demand for loanable funds

- *The supply of loanable funds* comes from households and firms who have extra income they wish to save and loan out

$$S = (Y - T - C) + (T - G)$$
- Saving is an increasing function of the real interest rate (upward sloping curve)
- *The demand for loanable funds* is investment in the economy: it comes from firms who wish to borrow to make investment

$$I = Y - C - G$$
- Investment is decreasing function of the real interest rate (downward sloping curve)

Supply and Demand for Loanable Funds



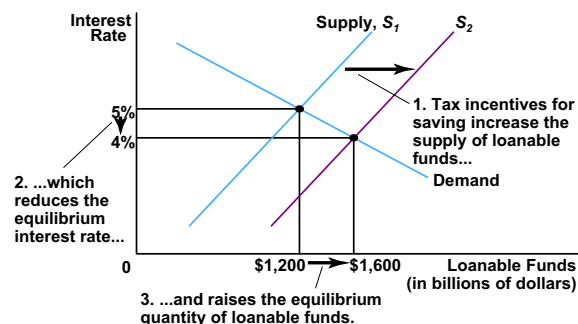
Government and the market for loanable funds

- *Real interest rate* moves to bring equality to the quantity supplied and demanded of loanable funds
- Once we define a market in equilibrium, our next step is always to see what changes the equilibrium in that market and how
- For the loanable funds market we shall look at the *policy actions of government* and how they affect the real interest rate
 - How taxes affect saving?
 - How taxes affect investment?
 - How budget deficits of the government affects real interest rate?

Saving incentives

- Changes in the tax regime for savings and/or interest income affects the rewards of saving and thus changes the *incentives to save*
- A *decrease in taxes* on saving increases the incentive to save at any given real interest rate
- The supply curve of loanable funds *shifts to the right*
- Higher savings *reduces* the equilibrium real interest rate
- Investment (quantity demanded of loanable funds) *increases* as a result of the lower interest rate
- The opposite holds for an *increase in taxes*
- Supply curve shift to left, real interest rate increases and the quantity of investment falls

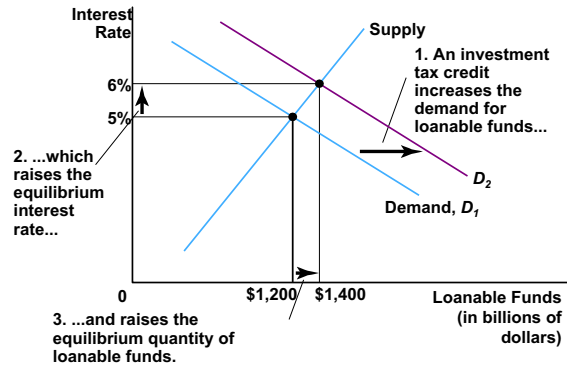
A decrease of taxes on saving



Investment incentives

- Changes in the *tax regime* that affects the profitability of investments affects the rewards for investment and thus changes the *incentives to invest*
- An *investment tax credit* (*yatırım vergi istisnası*) increases the incentive to borrow of the firms
- The demand curve for loanable funds *shifts to the right*
- Higher investment increases the equilibrium real interest rate
- Savings are higher because of the higher real interest rate
- *The opposite* holds true for an increase in taxes for income from investment

A decrease of taxes on investment



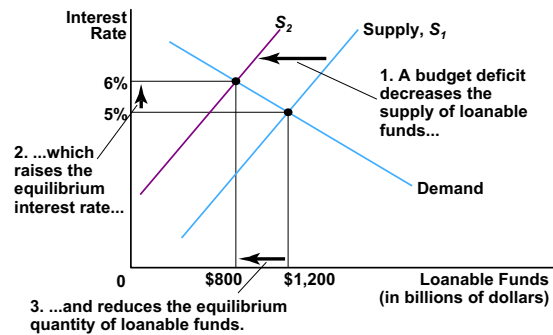
Budget deficit

- The shortfall in income when the government spends more than it receives in tax revenues is called the *budget deficit*
 - The deficit in the budget means that public saving is *negative*
 - Remember: budget balance affects the level of national saving
- $$S = (Y - T - C) + (T - G)$$
- Accordingly, the deficit in the budget decreases national saving and therefore the supply of loanable funds
 - By definition, the budget balance of the government has an impact on the loanable funds market

Crowding out

- When the budget moves into deficit, the supply of loanable funds curve *shifts to the left*
- Equilibrium real interest rate goes up
- Investment decreases because of the higher interest
- Government borrowing to finance the budget deficit *reduces* the supply of saving available to firms for investment in capital stock
- Because part of private saving in the economy is now being used to finance the budget deficit instead of going to investment
- The deficit *crowds out* private investment
- The accumulation of past budget deficits constitute the *public debt*

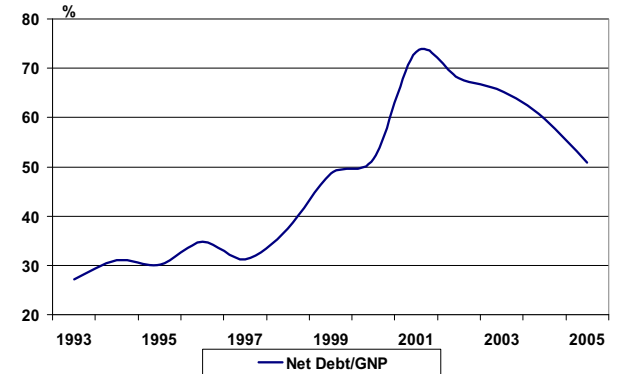
Budget deficit and crowding out



From deficits to debt

- When the government spends more than its revenues the deficit is financed *by borrowing* in domestic and international markets
- Public debt is therefore equal to *the sum of past budget deficits* of the government
- Large budget deficits rapidly increases public debt
- Public debt is best expressed as *a ratio of GNP*
- Part of the *gross public debt* could be held by public institutions like the Central Bank
- *Net public debt* is a better measure of debt burden
- Net public debt to GNP ratio increased rapidly in Turkey *80 % of GNP in 2001*
- It has been falling slowly during the last two years

Turkey: the rise in public debt



Public debt in the US



Conclusion

- Growth of output and accumulation of capital requires saving from current output with the aim of increasing the capital stock in the economy
- Financial system is the vital link between those who save and those who invest
- Financial markets work like other markets in the economy
- They coordinate borrowing and lending, helping to allocate the economy's scarce resources efficiently
- Turkey's financial system includes financial institutions such as banks and mutual funds and financial markets such as the bond market and the stock market

Conclusion

- National saving equals private saving plus public saving
- $$S = (Y - T - C) + (T - G) = I$$
- Saving and investment decisions are reflected into the market for loanable funds
 - Supply and demand for loanable funds determine the real interest rate
 - The budget deficit of the government represents negative public saving, reducing national saving and the supply of loanable funds
 - Budget deficit crowds out private investment thus reducing growth of GDP and the living standards in the long run

The Basic Tools of Finance

Chapter 27

Finance is everywhere

- In a modern economy every citizen is involved in some ways with the financial system
- *Deposits* in banks and *credit cards* are the simplest forms of financial transactions
- An increasing number of people use more sophisticated financial instruments such as shares of *stock* and *investment funds* to place their savings
- Fluctuations in the stock market index, in the interest rates, in the prices of government bonds as well as in the exchange rate cause excitement
- Understanding the *basic principles of finance* is important for our daily life

Financial decisions: time and risk

- Finance concerns the decisions we make today that affect our lives in unknown future
- Two elements become key to all financial decisions: *time and risk*
- Finance is the field that studies how people make *decisions* regarding the allocation of resources over time and the handling of risk
- First we learn to compare sums of money at different points in time
- Second, we discuss how to manage risk
- Third, we apply these concepts to examine what determines the value of an asset, such as a share of stock

Present value

- How can you compare 100 YTL paid today with 200 YTL paid in *ten years*, assuming zero inflation and 5 % real interest rate
- You can either calculate the value of 100 YTL in 10 years

$$100 \times (1 + 0.05)^{10} = 162.9 \text{ YTL}$$
- Or the present value of 200 YTL today

$$200 \times (1 / (1 + 0.05)^{10}) = 122.8 \text{ YTL}$$
- Obviously at 5 % real interest rate, 200 YTL has a bigger *present value* than 100 YTL
- If r is the interest rate, then an amount X to be received in N years has *present value* of:

$$X / (1 + r)^N$$

Measuring the time value of money

- Present value refers to the amount of money today that would be needed to produce, using prevailing interest rates, a given future amount of money
- The concept of *present value* demonstrates the time value of money
- Receiving a given sum of money in the present is preferred to receiving the same sum in the future
- If the payment in future is larger, we compare values at different points in time by their present values
- For example, firms undertake investment projects if the present value of the project exceeds its current cost to the firm

Future value and compound interest

- The amount of money in the future that an amount of money today will yield, given prevailing interest rates, is called the *future value*
- We calculate future value by assuming that the interest earned every period is added to the principal and earns interest in the next period
- This is also called compound interest
- If value at the beginning is V , real interest rate is r and the number of periods is N , future value FV becomes

$$FV = V \times (1 + r)^N$$
- This is the opposite of the present value formula

The Rule of 70

- It is very important to understand the meaning of *compounded expansion* for real life events
- Differences in annual growth rates that seem small at first sight turn out to be enormous when compounded over very long periods
- According to the *rule of 70*, if a variable grows at a rate of x percent per year, it doubles in approximately $70/x$ years
- Let us look at two examples (FYI p.585)
- At 7 % growth rate, GDP doubles roughly every 10 years, implying an *868-fold* increase in one century
- At 2.5 % growth rate, GDP doubles roughly every 28 years, implying *13-fold* increase in one century

Managing risk

- Life is about making decisions about future events with *unknown outcomes*
- Almost every decision involves some sort of uncertainty and therefore carries some risk
- In driving a car, choosing a profession, investing in the stock market, etc. outcomes depend on events beyond our control, almost like gambling
- The *rational response* to risk is not necessarily to avoid it at all cost
- But to take it into account during decisions making to transform it into *calculated risk*
- We must learn to *manage risk*

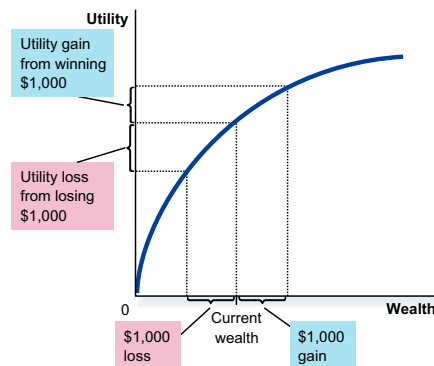
Risk aversion

- A person is said to be *risk averse* if he/she exhibits a dislike of uncertainty
- Most people are risk averse
- In the sense that they dislike bad things happening to them more than they like comparable good things
- Someone offers you to flip a coin for 100 mil. TL
- Heads you win, tails you loose
- Chances of winning and losing are equal
- If you are risk averse, you refuse this bet
- Because the pain from losing 100 mil. TL is bigger than the gain from winning 100 mil. TL
- Even if you know that chances are equal

Utility and risk aversion

- Economists have developed models of risk aversion using the concept of utility
- Utility is a person's subjective measure of well-being or satisfaction from some good or service
- Higher levels of wealth provide higher levels of utility but with *diminishing marginal utility*
- In the sense that, higher your wealth, the less utility you get from the incremental increase in wealth
- Diminishing marginal utility explains risk aversion
- The fall in utility from losing 100 mil. TL is bigger than the increase in utility from winning 100 mil. TL
- We can see this on the utility function

Utility and risk



Reducing risk

- Risk aversion provides the starting point for explaining various institutions or behaviours we observe in the economy
- Over time, economic agents have learned methods to reduce the risk they were obliged to take in the complex environment of a modern market economy
- We will highlight three methods that economic agents use to reduce risk
 - Buy insurance
 - Diversify
 - Accept a lower return on their investments
- These will improve our understanding of risk

Markets for insurance

- One way to deal with risk is to buy *insurance*
- The general feature of insurance contracts is that a person facing a risk pays a fee to an insurance company, which in return agrees to accept all or part of the risk
- Car insurance (kasko) covers the risks of an auto accident for the owner
- Every insurance policy is a *gamble*
- For example, the car owner bets that he will have an accident while the insurer bets that he won't
- From a macro perspective, insurance markets don't eliminate risk
- Only spread it evenly among a larger population

Asymmetric information

- Insurance markets suffer from problems due to the nature of information available to the insurer and the insured
- *Asymmetric information* refers to situations where one side in a transaction knows more about what is going on than the other side
- Obviously the *insured* himself knows much more about his own capabilities and intentions than the insurance company
- The theory covers many areas, such as employment, bidding for contracts, etc. besides insurance
- Two important applications are: *adverse selection* and *moral hazard*

Adverse selection

- *Adverse selection* refers to a seller knowing more about what he sells than the buyer
- Buyers of *second hand cars* have no idea about the real quality of the cars they are offered
- Therefore, they tend to *pay less* to cover that risk and therefore good cars stay out of the market
- Buyers of *health insurance* know more about their own health than the insurance company
- Sicker than average persons buy more health insurance, driving up costs and premiums, thus making health insurance even *less attractive* for healthy persons
- *High risk* people apply more to get insured

Moral hazard

- Moral hazard arises when one person, *the agent*, performs some task on behalf of another person, *the principal*, when perfect monitoring is not possible
- The possibility exists that the agent acts *against the interest* of the principal
- As in the examples below:
 - After taking fire insurance, a homeowner stops buying fire extinguishers
 - After taking accident insurance, a car owner drives faster
- The insurer is the principal, the insured the agent
- The price of insurance reflects the higher risks due to the moral hazard

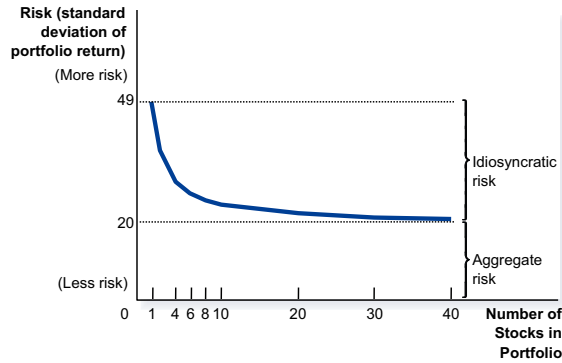
Diversification

- Mankind discovered thousands of years ago one of the principles of sound finance
- Summarised by the common saying
- “Don't put all your eggs in the same basket”
- *Diversification* refers to the reduction of risk achieved by replacing a single risk with a large number of smaller unrelated risks
- Investing in one single company could bring mega profits if the company is successful but also a big loss if it is a failure
- Diversification means investing in a large number of companies
- It will *reduce risk* but also the *return on investment*

Risk: idiosyncratic and aggregate

- We must distinguish two types of risk
- *Idiosyncratic risk* affects only a single economic actor
- Such as the uncertainty of profits, loss, bankruptcy, etc. associated with specific companies
- *Aggregate risk* affects all economic actors at once
- Such as the uncertainty associated with the entire economy due to recessions, financial crises, etc. which affects all companies
- *Diversification cannot* remove aggregate risk
- *Standard deviation* measures the volatility of a variable, i.e. the intensity of its fluctuations
- We use standard deviation to measure risk

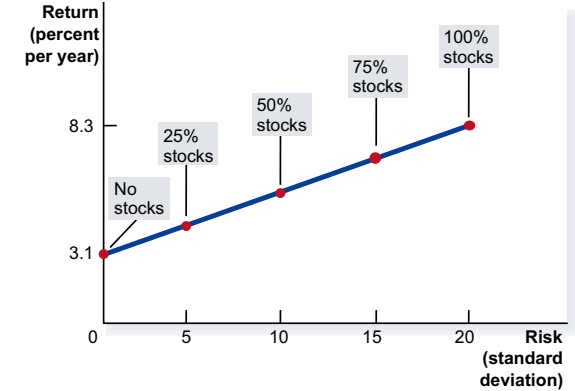
Diversification and risk



Trade-off between risk and return

- In life, less dangerous courses of action are usually also less advantageous
- There exists a one-to-one *inverse relation* between the risks and the profitabilities of investments
- Risk can be reduced by accepting lower returns
- Typically, stock market assets have *higher returns* in the long run compared with safe assets such as government bonds
- But in the short run the stock market may also cause large losses to the investor
- During the last two centuries two centuries average real return on stocks was 8.3 % in the US
- However bonds gave only 3.1 % real return

Tradeoff between risk and return



Asset valuation

- *Time and value* are two building blocks of finance
- We can apply this knowledge to current issues
- Let us start with a question of crucial importance for all investors in the stock market
- What determines the *price* of a share of stock?
- As in all prices, the answer is simple: supply and demand for that stock
- Demand for a consumption good or service depended on tastes, the income of the consumer, the prices of other goods, etc.
- What are the factors that determine the demand for a share of stock?
- *Asset valuation* deals with this question

Fundamental analysis

- Buying stock is becoming a partner in a business
- Deciding which companies to buy is not a subjective or emotional matter such as a buying a shirt, etc.
- It is a rational decision based on comparing the value of the company with its share price
- Depending on whether the price is less, equal or more than the value of the company, the stock is said to be undervalued, fairly valued or overvalued
- Given the price of stock, the decision will depend on the value of the company
- *Fundamental analysis* is the study of a company's accounting statements and future prospects to determine its value

Efficient markets hypothesis

- Assume you just included 20 stocks randomly selected from the list in your portfolio
- What would be its performance compared to a portfolio based on fundamental analysis?
- According to "efficient markets" it will perform well
- The *efficient markets hypothesis* is the theory that asset prices reflect all publicly available information about the value of an asset
- A market is *informationally efficient* when it reflects all available information in a rational way
- If markets are efficient, the only thing an investor can do is buy a diversified portfolio
- "You can't beat the market"

Random walks and index funds

- *Random walk* refers to the path of a variable whose changes are impossible to predict (CS, p.593)
- If markets are efficient, all stocks are fairly valued and no stock is more likely to appreciate than another
- Thus stock prices follow a random walk
- In other words, the changes in stock prices are impossible to predict on the basis of available information
- Index funds invest in companies in proportion to their weight in the stock market index
- In the 10 years ending in Feb.2002, 82 % of stock funds failed to beat the S&P index fund for NYSE

"Irrational exuberance"

- Efficient markets hypothesis assumes that people are rational in their behaviour in the stock market
- Many economists would challenge that assumption
- In the 1930s Keynes suggested that asset markets are driven by "*animal spirits*" of investors
- Such as irrational waves of optimism and pessimism
- In the 1990s Fed Chairman Greenspan warned against the "*irrational exuberance*" reflected in the stock market boom
- Short lived but large increases in stock prices are called *speculative bubbles*
- They appear frequently in all asset markets in the world, including highly developed economies

Conclusion

- Because savings can earn interest, a sum of money today is more valuable than the same sum of money in the future
- A person can compare sums from different times using the concept of present value
- The present value of any future sum is the amount that would be needed today, given prevailing interest rates, to produce the future sum
- Because of diminishing marginal utility, most people are risk averse
- Risk-averse people can reduce risk using insurance, through diversification, and by choosing a portfolio with lower risk and lower returns

Conclusion

- The value of an asset, such as a share of stock, equals the present value of the cash flows the owner of the share will receive, including the stream of dividends and the final sale price
- According to the efficient markets hypothesis, financial markets process available information rationally, so a stock price always equals the best estimate of the value of the underlying business
- Some economists question the efficient markets hypothesis, however, and believe that irrational psychological factors also influence asset prices

Unemployment and its natural rate

Chapter 28

What we learn in this chapter?

- This is the last chapter of *Part IX*: the real economy in the long run
- *Chapter 25* established the link between production, capital accumulation and the standard of living
- *Chapter 26* looked at saving and investment as the source of capital accumulation
- *Chapter 27* introduced the concepts of finance
- *Chapter 28* deals with labour as a factor of production for the whole economy
- We define different kinds of employment and unemployment in a market economy
- And see the relation between unemployment and wages

The importance of employment

- Whether citizens who are willing to work can find jobs is a very sensitive and important issue for all economies in the world
- Machines, natural resource, technical knowledge are very valuable for production but in the end it is always *people who produce*
- Unemployment means that the economy is not capable of using part of its productive capacity
- A country that keeps its workers as fully employed as possible achieve a higher level of GDP than the one who leaves many of them idle
- Unemployment also has important negative *social and political* consequences

From population to employment

- Our first task is to develop adequate measures for employment and unemployment
- *Population* covers all the people in a country, therefore many who are either too young or too old to work
- *Adult population* covers the economically active age group in the population
- Upper and lower age limits may vary; the World Bank takes 15-64 years
- *Labour force* comprises all person who supply labour for the production of goods and services, including those that are unemployed
- Employed plus unemployed equals labour force

Participation rate

- The relation between population and adult population depends on the growth rate of the population
- Countries with very high low population growth have more people below 15 years of age
- Higher the population growth, lower will be the share of adult population in total population
- *Labour force participation rate* is the proportion of labour force to adult population

$$\text{LFPR} = (\text{labour force} / \text{adult population}) \times 100$$
- Labour force participation rate is higher in developed industrial countries compared with less developed countries

International comparisons

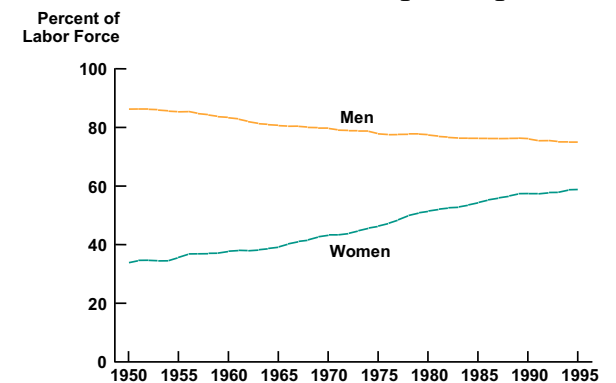
All for 2002	Population (millions)	Population growth (%)	Adult population (millions)	Participation Rate (%)	Labour force (millions)
Turkey (WDI)	70	1,6	46	74	34
Turkey (DIE)	70	1,6	46	54	25
Bangladesh	136	1,7	82	88	72
China	1.280	0,7	878	88	769
Japan	127	0,1	86	79	68
United States	288	1,1	191	78	148
Russian Federation	144	-0,5	101	77	78
Nigeria	133	2,2	71	74	53
Germany	82	0,2	56	73	41
India	1.049	1,6	651	72	470
Brazil	174	1,2	116	70	82
Pakistan	145	2,4	81	68	55
Mexico	101	1,4	62	68	42
Argentina	36	0,9	24	66	16
Egypt, Arab Rep.	66	1,8	41	63	26
Greece	11	0,4	7	63	5

Source: World Development Indicators 2004

Male and female employment

- What explains the *higher participation rate* in developed economies?
- One important factor is the *changing role of women* in society with economic development
- US, Germany, etc. *developed countries* have witnessed a steady increase in women participation rates during the last half century
- Household appliances that facilitate housework, birth control, increases in service industry jobs suitable for women have contributed to it
- More important is the change in *social and political attitudes* that discouraged women to work and gain economic independence

US: male and female participation



US: demographic groups

Demographic Group	Unemployment Rate	Labour-Force Participation Rate
ADULTS (Aged 20 and over)		
White male	3,7%	76,8%
White female	3,6	50,2
Black male	8,0	72,1
Black female	7,0	65,4
TEENAGERS (Ages 16-19)		
White male	13,8	54,1
White female	11,4	52,8
Black male	30,5	38,0
Black female	27,5	37,4

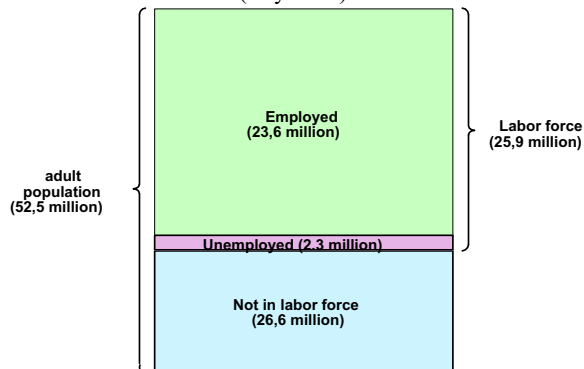
Structure of employment

- Another characteristic of developed economies is the very high share of *wage and salary earners* (employees) in the labour force
- In US, Germany, etc. only a small portion of the employed (10 % or so) is either self-employed or employer, the rest (90 %) are wage and salary earning employees
- *Turkey* has a totally different structure in employment
- Wage and salary earners, including temporary workers, constitute only 52 % of the employed
- Self employed, unpaid family labour and employers make up 48 % of the employed

Structure of employment compared

%	USA	Japan	EU-15	Poland	Turkey
15-64 years in Population	67	67	67	70	65
Participation Ratio	75	78	71	64	52
Unemployment Rate	5,5	4,7	8,3	19,0	10,3
Agriculture	2	5	4	18	34
Industry+Construction	20	29	27	29	23
Services	78	67	69	53	43
Payroll/Total	92	85	84	73	51
Female/Total	47	41	44	45	27

Turkey: breakdown of population (July 2007)



Civilian employment in Turkey

By category (2006Q3)	millions	%
Unpaid family labour	3,8	16%
Self-employed	5,3	23%
Wage or salary earner	11,1	48%
Daily wage earner	1,8	8%
Employers	1,3	5%
Total civilian employed	23,3	100%
Unemployed	2,3	9,1%
Labour Force	25,6	100%
By sector	millions	%
Agriculture	6,8	29,2%
Mining	0,1	0,5%
Manufacturing industry	4,3	18,5%
Energy, gas and water	0,1	0,4%
Construction	1,4	5,9%
Trade, restaurants, hotels	4,8	20,8%
Transport, communication	1,2	5,1%
Financial institutions	1,0	4,4%
Social and personal services	3,5	15,0%

Measuring unemployment

- A person is considered *employed* if he or she has spent most of the previous week working at a *paid job*
- A person is considered *unemployed* if he or she is on temporary layoff, looking for a job, or waiting for the start date of a new job
- A person in none of these categories *is not* in the labour force
- The *unemployment rate* is calculated as the percentage of the labour force that is unemployed.

$$\text{Unemployment rate} = \frac{\text{Number unemployed}}{\text{Labor force}} \times 100$$

Different kinds of unemployment

- Economists distinguish among four basically different kinds of unemployment
 - *Structural* unemployment
 - *Disguised* unemployment
 - *Cyclical* unemployment
 - *Frictional* unemployment
- This can be partly explained by the *duration of unemployment*
- Many people become unemployed but only for a very short period of time
- Some people remain unemployed for much longer periods of time
- Some people are never employed

Structural unemployment

- *Macroeconomic textbooks* are written mainly for the students of developed countries
- Where *enough capital* exists so that during booms the economy operates at full employment
- In less developed economies there is *lack of capital* to employ all of the labour force productively
- The 15-64 years age group members (adults) who can not find employment simply because there are not enough factories, offices, fields, etc. constitute *structural unemployment*
- Macroeconomic policies have *no impact* on structural unemployment in the short run: unemployment persists even during rapid growth

Disguised unemployment

- Another problem facing less developed economies is called "*disguised unemployment*" (*gizli işsizlik*)
- Many people, especially in agriculture and urban services seem to be working
- But they have very low productivity, creating very little value added and therefore earn low levels of income
- This is due to the lack of jobs with high productivity in the economy, itself due to the *capital constraint*
- Turkish unemployment figures are not a meaningful indicator of economic activity because widespread structural and disguised unemployment exist both in agriculture and services sectors

Cyclical unemployment

- This is the most important kind of unemployment from the *perspective of macroeconomics*
- The word “*cyclical*” refers to the *business cycle* or ups and downs in overall economic activity
- Cyclical unemployment happens when economic activity slows down as result of a recession or a an economic crisis
- As demand for goods and services fall, people who were producing them loose their jobs
- Many people became unemployed in Turkey during *2001 and 2002* because of the economic crisis
- *Banking and service industries* were the hardest hit and experienced the highest cyclical unemployment

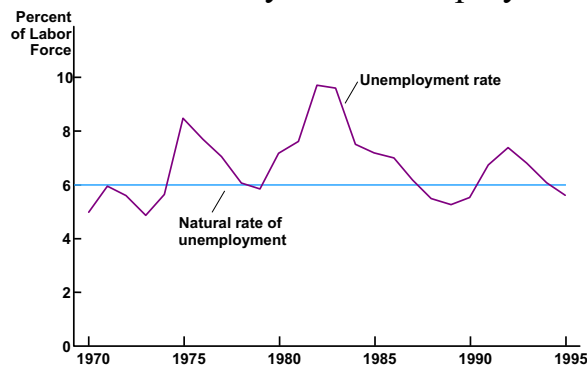
Frictional unemployment

- Employment, unemployment, labour force, etc are all *dynamic flow concepts*
- Companies and sectors grow, shrink, go bankrupt every day in every economy
- People migrate to other cities or regions for personal as well as economic reasons
- People change jobs for many, even irrational, reasons
- At any moment in time, there are many people *temporarily unemployed* in the economy
- Even at fullest possible level of employment, a small percentage of the labour force (for example 2 %) will be *frictionally unemployed* in every modern market economy

Natural rate of unemployment

- *Natural rate of unemployment* – NRU – is the level of unemployment that does not go away on its own even in the long run
- It is the amount of unemployment that the economy *normally* experiences
- NRU has an important link with *inflation*
- It is the rate of unemployment at which inflation remains constant in the economy
- It is also called *Non Accelerating Inflation Rate of Unemployment* – NAIRU
- Efforts to reduce unemployment to below NRU are usually *not successful*
- It is a very important tool in *macroeconomic policy*

US: NRU and cyclical unemployment



Is unemployment measured correctly?

- Movements of people *in and out* of the labour force makes it difficult to interpret unemployment figures correctly
- Discouraged workers, people who would like to work but have given up looking for jobs, *don't show* up in the unemployment statistics
- Other people may claim to be unemployed in order to receive financial assistance even though they are not looking for work
- Finally, some people may seem working but actually would be willing to take a better job if they could find it (*disguised unemployment*)

Why is there unemployment?

- In an *ideal labour market*, wages would adjust to balance the supply and demand for labour
- Ensuring that all those who look for jobs find one
- And the economy stays at *full employment*
- But, unemployment is a *fact of life* for all market economies
- We will review four explanations advanced by economists for unemployment
 - Job search
 - Minimum wage laws
 - Trade unions
 - Efficiency wages

Job search

- Job search is the process by which workers find appropriate jobs given their tastes and skills
- *Job search unemployment* results from the fact that it takes time for qualified individuals to be matched with appropriate jobs
- This unemployment is different:
 - It is not caused by a wage rate higher than equilibrium wage rate
 - It is caused by the time spent searching for the “*right*” job
- Those in the banking sector who lost their jobs in Turkey recently find it difficult to accept jobs in other sectors

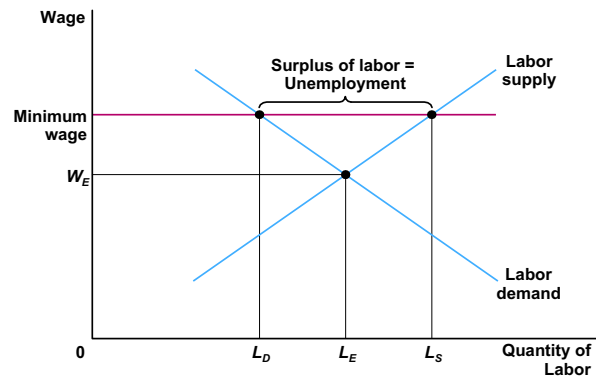
Unemployment insurance

- In the *20th century* governments designed policies targeting the unemployed
- *Unemployment insurance* exist in all industrial economies and was recently introduced in Turkey
- It is financed through the *premiums* paid by the employee and the employer
- The unemployed who are part of the scheme receive *unemployment benefits*
- How much and how long changes from country to country
- Economists fear that generous and long unemployment benefits actually increase NRU
- And become a big burden on the budget

Minimum wage laws

- Most economies have legislation which fixes the *minimum wage* to be paid to workers by firms
- Minimum wage laws try to *protect workers* against employers
- But, if the minimum wage is set above the level that balances supply and demand, it may also create unemployment
- It is therefore possible to claim that some unemployment is due to minimum wages
- In Turkey the *minimum monthly wage* for the first half of 2007 is set by the government at 563 YTL before tax (403 YTL after tax)
- But its effect on the economy is minimal

Minimum wage laws



Unions and collective bargaining

- A *trade union* (*işçi sendikası*) is a worker association that bargains with employers over wages and working conditions
- A union is a type of *cartel*
- The process by which unions and firms agree on the terms of employment is called *collective bargaining*
- A *strike* is organised in case of disagreement
- By acting as a cartel with ability to strike or otherwise impose high costs on employers, unions usually achieve *above equilibrium wages* for their members
- Union members earn 10 to 20 percent more than non-union workers in the US

Debate over unions

- The contribution of unions to the welfare of society is *controversial*
- *Critics* argue that unions cause the allocation of labour to be inefficient and inequitable
- Wages above competitive levels reduce employment and cause unemployment
- Union workers benefit at the expense of non-union workers and the unemployed
- *Advocates* of unions contend they are a necessary antidote to the market power of firms
- They claim that unions are important for helping firms respond efficiently to workers' concerns about wages and job security

Theory of efficiency wages

- The *theory of efficiency wages* is another more recent explanation of why wages may remain above equilibrium level despite unemployment
- Efficiency wages are *above-equilibrium wages* paid by firms in order to increase worker productivity
- The theory claims that paying above-equilibrium wages to its workers is in *the interest of the firms*
- Because it allows production to be more efficient and therefore helps reduce costs of the firm despite the higher wages
- A firm may prefer higher than equilibrium wages for *four main reasons*: worker health, worker turnover, worker effort and worker quality

Four ways to efficiency

- *Worker Health*: better paid workers eat better and thus are more productive (this argument is valid only for very poor countries)
- *Worker Turnover*: training a worker is expensive; a better paid worker is less likely to look for another job and the firm saves training expenses
- *Worker Effort*: production process demand full participation by the worker to be efficient and higher wages motivate workers to put forward their best effort
- *Worker Quality*: higher wages attract a better pool of workers that apply for jobs to the firm, improving the firm's chances of getting better workers

Conclusion

- Unemployment is a major economic as well as political and social issue in all economies
- Adult population is the 15-64 year old age group
- Labour force consists of the employed and the unemployed
- The unemployment rate is the percentage of people who would like to work but don't have jobs
- There are four different kinds of unemployment: structural, disguised, cyclical and frictional
- Most unemployment in Turkey is structural
- Wage and salary earners constitute only 49 percent of the labour force in Turkey

Conclusion

- Minimum-wage laws can create excess labour supply and cause unemployment
- The market power of unions can cause unemployment by pushing wages above the equilibrium level
- The payment of efficiency wages and the time involved for workers to search for suitable jobs are other reasons for unemployment
- Unemployment insurance increases the amount of search unemployment
- It may increase workers' chances of being matched with the right jobs

PART X: MONEY AND PRICES IN THE LONG RUN

The Monetary System

Chapter29

Money in the long run

- In *Part IX* we looked at the real economy in the long run: production, growth, saving-investment, real interest rate, employment and real wages
- We assumed a closed economy with a government and a financial system but *without money*
- Obviously, everywhere in the world money is far too important to neglect for economic theory
- Now we will try to *define money* and see how it affects the economy in the long run
- The introduction of money permits a first approach to inflation
- Understanding money is even more vital for high inflation countries like Turkey

Plan of Part Ten

- *Chapter 29* is called the *Monetary System* which includes the Central Bank as well as banks
- It begins with the definition of money and develops the concept of the supply of money
- *Chapter 30* is called *Money Growth and Inflation*
- We begin by establishing the determinants of the demand for money in the long run
- Next, we see the link between the increase in the supply of money and inflation
- Finally we evaluate the effects of inflation on the smooth working of an economy
- The short run effects of money are dealt in *Part Twelve* along with other short run analysis

What is money?

- Money has a *very specific meaning* for economists
- The set of assets in the economy that people *use regularly* to buy goods and services from other people is called money
- Every economic transaction, for a good, a service or a factor involves a buyer, a seller and *an agreed means of payment* for the transaction
- Anything that the sellers of goods, services and factors accept *as payment* against what they sell is by definition money
- Throughout history, as specialisation in production created exchange, *money and monetary systems* were invented by independent societies

Functions of money

- Money has three functions in the economy
 - A medium of exchange
 - A unit of account
 - A store of value
- A *medium of exchange* is anything that is readily acceptable as payment
- A *unit of account* is the yardstick people use to post prices and record debts
- A *store of value* is an item that people can use to transfer purchasing power from the present to the future
- When TL fulfilled only partly the first function, we used the USDollar for the other two (“*dandik para*”)

Liquidity

- A key concept to understand money is liquidity
- *Liquidity* is the ease with which an asset can be converted into the economy’s medium of exchange
- By definition, *money* is the most liquid asset: banknotes in our pocket need not be converted into anything to be used for payment
- *Sight deposits* (vadesiz mevduat) in the banks and *money market funds* (B tipi fon) are also liquid
- *Demand deposits* (vadeli mevduat), *shares* in listed companies and *investment funds* (A tipi fonlar) are less liquid assets
- Real estate, shares in non-listed companies *are not* liquid assets

Commodity money

- From the days agriculture was discovered 7000 years ago all the way to the 19th century, money took the form of commodities with *intrinsic value*
- Not all commodities are suitable to be money
- Goods that are perishable (eggs, tomatoes), non-divisible (hides), difficult to transport (water) or relatively abundant (wheat) make bad money
- From very early days, societies understood that *metals* fulfill the functions of money
- Copper, then silver, *eventually gold* was minted by governments as currency
- Other examples reflect *marginal exceptions* (such as cigarettes among war prisoners)

Fiat money

- *Fiat money* is used as a medium of exchange because of a government decree/decision
- US, EU, Japan, etc. *all economies* in the world have fiat money
- Fiat money has *no intrinsic value*
- The paper and printing costs of a banknote or the metal value of a coin are negligible
- In Turkey, we must accept the coins and banknotes issued by the Central Bank for all payments
- We can link the price in a transaction to anything we wish (US\$, gold, CPI, price of wheat, etc.) but cannot refuse *payment in TL*
- Banknotes are also called “*legal tender*”

Money in the Turkish economy

- The actual form liquid assets take in an economy depends on the *legal framework* of the financial system
- For Turkey, we distinguish four types of money
- *Currency* is the paper banknotes and metal coins in the hands of the public
- *Demand deposits* (vadesiz hesap) are balances in bank accounts that depositors can access on demand usually by writing a check.
- *Time deposits* (vadeli hesap) are balances in bank accounts that can only be drawn at agreed time.
- *Foreign exchange deposits* (döviz mevduat hesapları) are accounts in foreign exchange (FX)

Measures of money supply

- *Money supply* is the total of money (liquidity) available for use in the economy
- The measure of money supply changes depending on the different categories of assets included in it
- Usually we start with the most liquid asset and go down towards less liquid assets
 - M_0 = Currency in circulation
 - Base money (BM) = M_0 + bank reserves
 - M_1 = BM + demand deposits
 - M_2 = M_1 + time deposits
 - M_2Y = M_2 + FX deposits
 - M_2Y+R = M_2Y + Repos

Money supply in Turkey

	Dec.06		As % of
	(Billion YTL)	(Billion USD)	M2Y+R
C - Currency in Circulation	21,3	15,0	8,1
BM - C + Bank Deposits at CB	21,1	14,9	8,0
M1 - BM + demand deposits	42,4	30,0	16,1
M2 - M1 + time deposits	170,7	120,5	64,7
M2Y - M2 + FX deposits	258,3	182,4	97,9
M2 + R - M2 + Repos	176,2	124,4	66,8
M2Y + R - M2Y + Repos	263,8	186,2	100,0

The Central Bank

- During the 20th century, as fiat money became widespread, countries gave the monopoly to print banknotes and mint coins to a public institution called the *Central Bank*
- Before the Republic, *Osmanlı Bankası*, a private bank, had the charter to issue currency
- *Türkiye Cumhuriyet Merkez Bankası* (TCMB) was established in 1930 and started operations in 1932
- In the US, the *Federal Reserve Board* with 12 Federal Reserve Banks fulfills the functions of the central bank (established in 1913)
- Currency was issued by US Treasury before that date

Functions of the Central Bank

- *The Central Bank* is probably the most important institution of macroeconomics because of its role in regulating the liquidity in the financial system
- CB oversees and regulates the banking sector
- In Turkey this function was recently transferred to the *Banking Regulation Agency* (BDDK)
- CB acts as a banker's bank, making loans to the banks as a *lender of last resort*
- CB conducts *monetary policy* by controlling the money supply and determining the short run nominal interest rates
- CB holds the *official foreign exchange reserves* of the country

Organisation of TCMB

- *General Assembly* (Genel Kurul) is constituted by the shareholders (government) and meets annually
- *CB Board* (Banka Meclisi) is elected by the General Assembly to run the CB
- *The Governor* (Governör or Başkan) is the chief executive officer of the CB, elected directly by the Government for 5 years
- *Monetary Policy Board* (Para Politikası Kurulu) has been established recently to conduct monetary policy
- Recently TCMB has obtained *legal independence* from the government in its effort to pursue price stability

Balance Sheet of CB

- The *Balance Sheet* of the CB summarises monetary developments in the economy
- *Assets and liabilities* of the CB are either in foreign exchange or in the currency issued by the CB
- Gold and the foreign exchange holdings of the CB constitute its *international reserves*
- Local currency assets are usually *T-bills*
- Banknotes issued by the CB are called *currency in circulation*
- Attention: local currency in circulation is a *liability for CB* (it represents the debt of CB to the holder)
- Deposits by banks and its paid capital CB are the other liabilities of the CB

World: CB balance sheets

	US Fed Reserve	Bank of Japan	Euro area ECB	Germany Bundes Bank	TCMB
billion USDollar					
Assets	772	1258	1094	300	55
FX Assets (inc.gold & SDR)	20	44	404	45	38
Local Currency Assets	752	1213	689	255	17
Liabilities	772	1258	1094	300	55
FX Liabilities	0	0	25	2	37
Local Currency Liabilities	772	1258	1069	298	17
Currency in circulation	690	684	545	131	8
Important ratios					
GNP (year 2000)	10.946	4.390	7.008	2.085	242
Assets/GNP (%)	7	29	16	14	23
Currency in circ./GNP (%)	6	16	8	6	3
FX Liabilities/Total Liabilities (%)	0	0	2	1	68
Currency in circ./Liabilities (%)	89	54	50	44	14

All for year-end 2003

Fractional reserve banking

- Banks have a very important influence on the quantity of demand deposits in the economy and therefore on the money supply
- *Fractional reserve banking* refers to banks holding only a fraction of the money deposited as reserves and lending out the rest of the deposits to customers
- *Reserves* are deposits that banks have received but have not loaned out (kept either as banknotes or as deposits at the CB)
- In fractional reserve banking, banks are able to create deposits and therefore money *almost like* the Central Bank
- Let us see how it works

Money creation by banks

- When a bank makes a loan from its reserves, the money supply increases
- To understand this process, we must look at the *balance sheets* of the banks
- Deposits into a bank are recorded as both *assets and liabilities*
- Loans become assets of the bank
- When one bank loans money, that money is usually deposited in the banking system, thus creating *more deposits and loans*
- The *money multiplier* is the amount of money the banking system creates with each TL of currency issued by the CB

The balance sheet of a bank

This T-Account illustrates a bank that accepts deposits, keeps a portion as reserves, and lends out the rest.

First National Bank	
Assets	Liabilities
Reserves \$10.00	Deposits \$100.00
Loans \$90.00	
Total Assets \$100.00	Total Liabilities \$100.00

Balance sheet of two banks

First National Bank		Second National Bank	
Assets	Liabilities	Assets	Liabilities
Reserves \$10.00	Deposits \$100.00	Reserves \$9.00	Deposits \$90.00
Loans \$90.00		Loans \$81.00	
Total Assets \$100.00	Total Liabilities \$100.00	Total Assets \$90.00	Total Liabilities \$90.00

The Money Multiplier

- How much money is *eventually created* in this economy?

Original deposit	= \$ 100.00
First National lending	= \$ 90.00 [=0.9 x \$100.00]
Second National lending	= \$ 81.00 [=0.9 x \$90.00]
Third National lending	= \$ 72.90 [=0.9 x \$81.00]
etc.	etc.
etc.	etc.
<hr/>	
Total money supply	= \$1,000

Money multiplier

- The money multiplier is the *reciprocal* of the reserve ratio

$$M = 1 / R$$

- Let us see some examples
- For a reserve requirement $R = 20\%$, the money multiplier becomes $M = 5$
- In other words if banks keep reserves as 20% of deposits, an increase in currency in circulation of 1 unit will increase total money supply by 5 units
- For $R = 10\%$ we have $M = 10$
- Attention: some currency is also held by the *non-bank sectors* in real life, thus reducing the money multiplier M

Money supply and monetary policy

- Money supply* is the total quantity of money available in the economy
- Measures of money supply include deposits in the banking system
- The control of CB over the money supply in the economy is called *monetary policy*
- The CB has four types of tools in its toolbox to control the money supply
 - Open market operations – OMOs
 - FX operations
 - Changing the reserve requirements of the banks
 - Changing the discount rate for its lending

Open market operations – OMOs

- The primary way in which the CB changes the money supply is through *open market operations* (Açık Piyasa İşlemleri – API)
- Open market operations refer to the *purchase or sale of T-bills* by the CB in the bond market
- When the CB buys T-bills from the bond market, it pays for them with the currency it issues thus the money supply increases
- When the CB sells T-bills at the bond market, it receives for them currency it issued thus the money supply decreases
- OMO are by far the most important way for most CBs to control the money supply

FX operations

- Another instrument through which the CB controls the money supply is through *buying and selling FX*
- When the CB buys FX from the banks and the public, it pays for it by the TL it issues, thus the money supply increases
- When the CB sells FX to the banks and the public, it receives TL previously issued by the CB, thus the money supply decreases
- This method was a very important monetary policy tool for Turkey during the 1990s when the CB fixed the exchange rate
- CBs of developed countries buy and sell FX only exceptionally and only in support of their currency

Changing the reserve requirement

- Official reserve requirements* are, as the name implies, regulations of the CB on the minimum amount of reserves that banks must hold against deposits
- Increasing the reserve requirement forces the banks to keep a larger proportion of their deposits *as reserves at the CB*, thus reduces their ability to give loans and therefore increase the money supply
- Decreasing the reserve requirement frees funds to be lent out by the banks, thus increasing the money supply in the economy
- In other words, changing the reserve requirements increase or reduce the value of the *money multiplier*

Changing the discount rate

- The *discount rate* is the interest rate CB charges banks for short term loans (in Turkey the overnight interest rate)
- A fall in the discount rate is an *incentive* for banks to borrow more from the CB to meet their reserve requirements and frees funds for loans, thus increasing the money supply
- An increase in the discount rate is a *disincentive* for banks to borrow from the CB to meet their reserve requirements and blocks funds for loans, thus reducing the money supply
- This is the *most widely used tool* of monetary policy in developed economies

Problems in controlling the money supply

- Actual control of the CB over the *money supply* is not always precise
- Two problems* of the fractional banking system stand out
- The amount of money and FX households and firms choose to hold *as deposits* in the banks can vary substantially over time
- The proportion of loans as a *percentage of deposits* can also change from period to period as banks put a bigger or smaller value to being liquid
- That's why the *discount rate* is considered to be a better tool for efficient monetary policy

The lender of last resort

- It is worth underlining the *“lender of last resort”* function of the CB
- If the public and the banks demand more liquidity and currency, *someone* in the economy must supply that liquidity
- Assume depositors fear bank defaults and make a *run on banks*
- If there is no lender of last resort, the currency in the economy will fall short of demand and the bank run will transform into *bank failures*
- CB moves in to supply the *liquidity and currency* to banks thus restoring confidence in the banking system

Conclusion

- Anything that sellers of goods, services and factors accept as payment is money
- Money serves three functions in an economy
 - As a medium of exchange
 - As a unit of account
 - As a store of value
- Commodity money is money that has intrinsic value
- Fiat money has no intrinsic value but circulates by law
- The Central Bank (TCMB) regulates the monetary system in Turkey
- It also has the monopoly to issue TL banknotes and coins

Conclusion

- When banks loan out the money they receive as deposits from the public they help create money in the economy
- The money multiplier is the measure of banks' ability to create money
- Money supply is the money available in the economy
- Monetary policy is the control of the money supply in the economy by the CB through
 - Open market operation
 - FX operation
 - Changing reserve requirements
 - Changing the discount rate

Conclusion

- CB cannot control the amount bankers choose to lend or the amount households and firms choose to deposit in the banks, nor their decision to hold TL or FX
- Therefore the control of CB over the money supply is imperfect
- Leading modern monetary policy to rely more on changing the discount rate than try to control directly the money supply

Money Growth and Inflation

Chapter 30

Inflation as a fact of life

- Turkey has experienced very high levels of inflation during the *last three decades*
- Students in Turkey do not need a course in macroeconomics to understand inflation
- The prices of the goods and services they buy has been *visibly increasing* from month to month
- None remembers how much a newspaper, a shoe, a bus ticket, a shirt, etc. cost even few years ago
- The objective of this chapter is to provide explanations about *the causes of inflation* by showing its strong link with the money supply
- And review the *economic and social costs of inflation*

Defining inflation

- Inflation is an increase in the *overall price level* of the economy
- It corresponds to a *continuous increase* as opposed to a once-for-all increase in prices
- It deals with the increase in *average of prices* and not just significant increases in the prices of a small number of goods and services
- *Deflation* is a decrease in the overall price level of the economy
- Deflation occurred in the US during the 19th century and in 1930s; in Turkey in 1930s; in Japan during the last few years
- *Hyperinflation* refers to very high rates of inflation

Historical aspects of inflation

- In the long run, world economic history shows that inflation is *the exception*, not the rule
- It affects only *some* countries during *some* periods
- Most market economies have very low levels of inflation during peacetime
- *1970s and 1980s* were the only period when world inflation moved to near double-digit levels, mainly due to sharp increases in the *price of oil*
- Few countries are like *Turkey*, with an average inflation near triple-digit figures or above for several decades
- High inflation economies also experienced periods of hyperinflation *but not* Turkey

World inflation: long run trends

	CPI in		Average Inflation (%)	CPI inflation in 2001 (%)
	1960	2000		
Germany	100	342	3,1	1,7
Switzerland	100	382	3,4	0,7
Belgium	100	382	3,4	2,6
Netherlands	100	498	4,1	3,8
Japan	100	550	4,4	-1,4
United States	100	581	4,5	1,1
Canada	100	615	4,6	1,3
Thailand	100	757	5,2	0,3
France	100	813	5,4	2,0
United Kingdom	100	1.367	6,8	1,3
India	100	2.160	8,0	4,9
South Korea(*)	100	1.965	9,2	-1,1
Egypt, Arab Rep	100	3.734	9,5	2,5
Greece	100	6.419	11,0	3,4
Mexico	100	491.460	23,7	4,8
Turkey	100	27.221.930	36,7	68,5
Argentina	100	144.071.709.066.919	101,4	4,0

(*) Series start at year 1966

World inflation: by decades

%	Average Annual Inflation				
	1960-2000	1960s	1970s	1980s	1990s
Germany	3,1	2,6	4,9	1,5	2,1
Switzerland	3,4	3,5	4,5	2,4	1,3
Belgium	3,4	3,5	4,5	2,4	1,3
Netherlands	4,1	4,8	7,5	1,2	2,3
Japan	4,4	5,5	9,8	1,4	0,6
United States	4,5	2,8	8,1	3,7	2,6
Canada	4,6	3,1	8,8	4,4	1,5
Thailand	5,2	1,8	10,2	3,0	4,8
France	5,4	3,8	10,2	4,4	1,5
United Kingdom	6,8	3,9	14,9	5,3	2,7
India	8,0	7,7	7,6	8,2	8,8
South Korea(*)	9,2	-	16,5	4,1	4,8
Egypt, Arab Rep.	9,5	4,2	10,1	18,3	7,9
Greece	11,0	2,3	15,5	17,9	8,0
Mexico	23,7	2,9	18,5	76,6	19,7
Turkey	36,7	4,4	29,2	48,5	80,8
Argentina	101,4	23,2	149,3	460,3	3,3

(*) Series start at year 1966

A monetary phenomenon

- Inflation is always and everywhere basically a *monetary phenomenon* concerning the *value of* the economy's medium of exchange (money)
- Remember *Principle 9 in Chapter 1*: "Prices rise when government prints too much money"
- To understand the causes of inflation we must understand the concepts of
 - money supply,
 - money demand
 - monetary equilibrium
- We will see that in the long run the overall level of prices adjusts to the level at which demand for money *equals* the supply of money

Money supply and demand

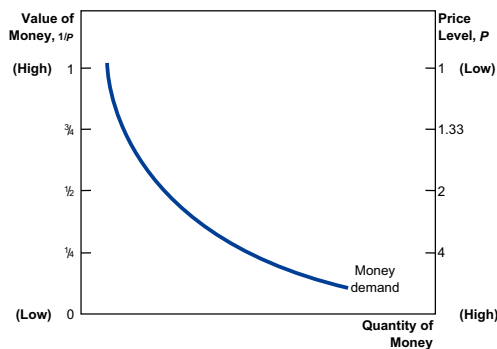
- We introduced *money supply* in Chapter 29
- Money supply is a *policy variable* controlled by the CB through instruments such as OMOs, FX operations, discount rate and reserve requirements
- *Money demand* explains why people hold money
- First and foremost, because it is the medium of exchange and people need it *for payments*
- *Interest rate* will obviously influence the decision to hold money because it is the *opportunity cost* of holding money but is not effective in the long run
- In turn, increases in the *price level* (falls in the value of money) oblige people to hold more money to undertake the same amount of real transactions

Value of money

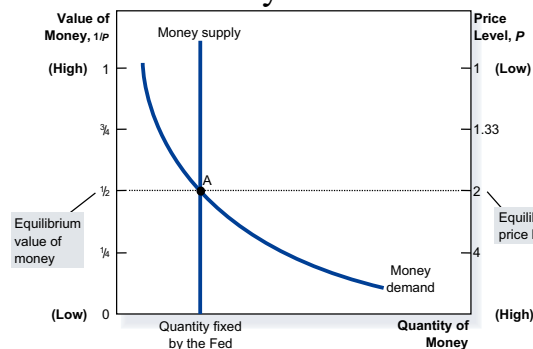
- How do we measure the *value of money*?
- By comparing the basket of goods and services that a unit of money buys in different periods of time
- In other words, the value of money V_m is the inverse of the price level P

$$V_m = 1 / P$$
- Value of money is only used for comparing the purchasing power of *same currency* for two *different periods*
- Demand for money is a decreasing function of the value of money
- Higher V_m means less money is held by people
- Money demand curve is downward sloping

Money demand



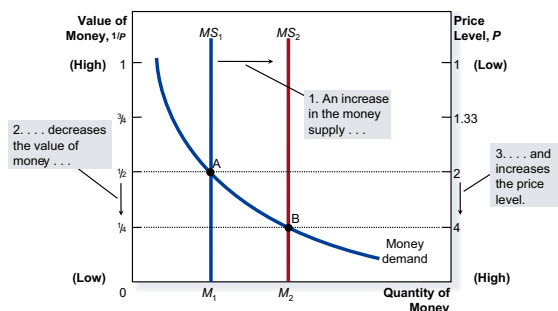
Equilibrium of money supply and money demand



Monetary equilibrium

- Every price level determines the quantity of money that people wish to hold for their needs
- At higher price levels, more money is demanded
- *Monetary authority* (Central Bank) determines the quantity of money available in the economy
- The *intersection of the two curves* corresponds to the equilibrium level of prices: at that price level the demand and supply of money is equal
- If CB *injects money* into the economy (by buying FX or T-Bills), the money supply curve shifts to the right
- At the new equilibrium we have a *higher price level* and a lower value of money

Effects of monetary injection



Adjustment process

- How does the economy *move* from the old equilibrium to the new equilibrium?
- This is a very important question which must wait the short run fluctuations for a full answer
- When people have too much monetary assets compared to the price level, they will try to get rid of it by either *spending or lending* it
- In both cases, total spending on goods and services will increase
- But the supply of goods and services is constrained by the factors of production and is therefore constant
- *Excess supply of money* turns into *excess demand* for goods and services, thus pushing prices up

Classical dichotomy

- According to 18th century English economist *David Hume* and others, real economic variables do not change with changes in the money supply
- *Classical dichotomy* refers to the separation of real and nominal variables in the economy
- *Nominal variables* are measured in monetary units, such as nominal wages, nominal prices, nominal GDP, etc.
- *Real variables* are measured in physical or constant units, such as real wages, real GDP, labour force, physical capital, etc.
- In the long run, changes in the money supply affect nominal variables *but not* real variables

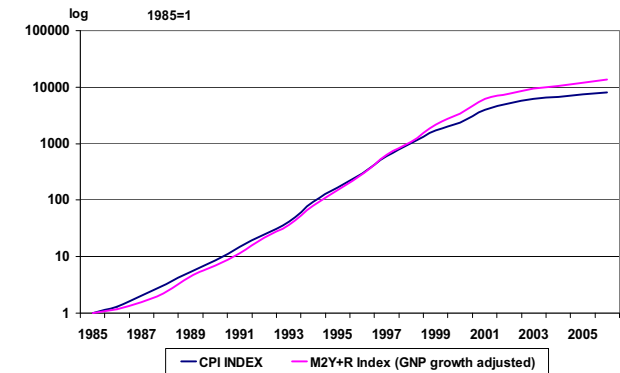
Monetary neutrality

- The irrelevance of monetary changes for real variables is called *monetary neutrality*
- Keep in mind that both classical dichotomy and monetary neutrality are concepts for the *long run*
- In the short run, money will matter as we shall see later on in *Part Twelve*
- But in the long run, ever faster increases in the money supply will have *no effect* on the quantity of factors of production available in the economy
- Because these depend on *real factors* such as the saving rate, the budget deficit, technological change, spending on education and human capital, etc.
- Thus *money is neutral*

Quantity Theory of Money

- The *one-to-one relation* between the quantity of money and the price level constitutes one of oldest theories in economics
- The Quantity Theory of Money (QTM)* claims that the quantity of money available in the economy determines the value of money
- Therefore, the primary cause of inflation for every economy is the growth in the *quantity of money*
- Most economists today accept the quantity theory of money for the long run, let us say a decade or longer but not for the short run
- Long run data* on Turkish economy for CPI and M2Y+R (1985-2004) validates the QTM

Money and prices in Turkey



Velocity and the quantity equation

- The velocity of money* refers to the speed at which the typical banknote travels around the economy from wallet to wallet

$$V = (P \times Y) / M$$

V = velocity of circulation

P = the price level

Y = the quantity of output

M = the quantity of money

- Rewriting it, we get the quantity equation

$$M \times V = P \times Y$$

- This summarises the *Quantity Theory of Money*
- For velocity (M) and output (Y) constant, doubling money (M) implies doubling prices (P)

Money and inflation in QTM

- Obviously, constant price (real) GDP is a good substitute for output Y
- For the price level P we can use either the GDP deflator or the CPI
- Assuming a *constant velocity V*, we get a simple relation among the three variables
- Inflation is equal to the percentage change in money supply *minus* GDP growth rate

$$\Delta P / P = (\Delta M / M) - (\Delta Y / Y)$$
- If GDP grows at 3 % while money grows at 8 %, inflation would be 5 %
- In other words, printing money explains *all of the* inflation phenomenon in the long run

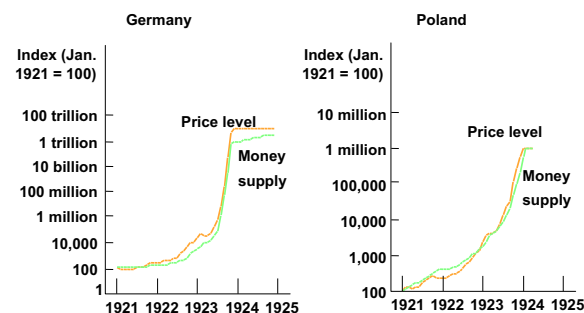
QTM: an evaluation

- Even for the long run, QTM is based on two important assumptions
 - The *velocity of circulation* is stable over time
 - The economy's output of goods and services primarily depend on factor supplies and technology, which *are not affected* by the quantity of money (money is neutral)
- Any increase in money supply is automatically translated into *excess demand* in goods, services and factor markets, leading to inflation
- When the CB increases the money supply *rapidly*, the result is a very high rate of inflation and eventually hyperinflation

Hyperinflation

- Hyperinflation* is inflation that exceeds 10 % a month for at least several months
- Hyperinflation occurs in some countries because the government prints *too much money* to pay for its spending
- As inflation picks up speed, people try to hold as little money as possible, therefore the velocity of circulation goes up and the government has to print *even more* money
- Inflation usually stops by the total collapse of all payment systems as people prefer barter to money payments
- Hyperinflation causes *much damage* to the economy

Hyperinflation examples



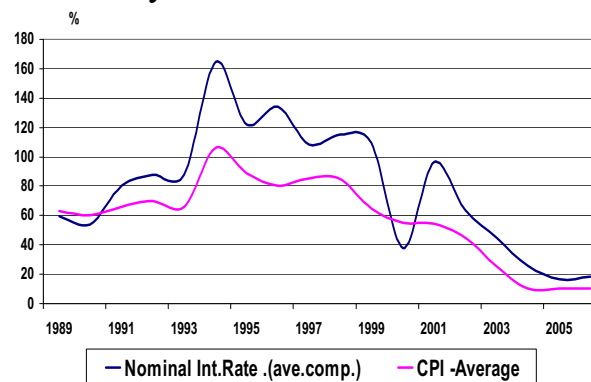
Hyperinflation and inflation tax

- When government raises revenue by printing money, it is said to levy an *inflation tax* on citizens
- The inflation tax is paid by anybody *who holds money* either as cash or as demand deposits
- Both households and firms hold money and pay the inflation tax *in proportion* to the quantity of money they hold
- Therefore, higher the inflation rate, the less both will try to hold domestic currency (or move to FX)
- High inflation (and hyperinflation) ends when the government institutes fiscal reforms such that either by cutting spending or raising revenues *it stops* printing money

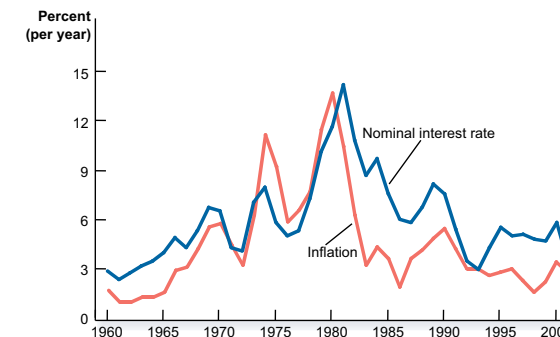
The Fisher effect

- In Chapter 25 we studied real and nominal interest rates
Real interest rate = nominal interest rate –inflation
- According to the *Fisher effect*, when the rate of inflation rises, the nominal interest rate rises by the same amount despite unchanged real interest
- When the CB increases the rate of money growth, the result is both higher inflation and *higher nominal interest rates*
- High interest rates *are caused by* inflation, not the other way around
- *Printing money* causes high inflation and therefore high interest rates

Turkey: inflation and interest rates



US: inflation and interest rates



The costs of inflation

- Most economists agree that inflation, especially inflation above 2-3 % per year, is *a bad thing* for the economy overall
- In the sense that it causes *waste of resources* and therefore the economy has a *lower average growth rate* in the long run
- Below are the major cost items
 - Shoe-leather costs
 - Menu costs
 - Relative price variability
 - Tax distortions
 - Confusion, inconvenience and dollarisation
 - Arbitrary redistribution of wealth

Fact and fallacy about inflation

- What economic analysis points as costs of inflation are very different from the general belief held by most citizens
- General belief is that inflation reduces the income of individuals and causes the living standards to decline (*hayat pahalılığı*)
- This is simply *not true*
- One person's inflated price is another person's inflated income
- Nominal price increases can happen *only if* nominal incomes are also rising
- In other words, with inflation nominal incomes keep pace with rising prices

Shoeleather and menu costs

- *Shoeleather costs* corresponds to resources wasted when people *reduce* their money holdings
- Inflation means the real value of money is falling, so people have an incentive to hold *less money*
- They must go to the bank *more often*, their shoes are worn out
- *Menu cost* are the costs of *changing prices often*
- In non-inflationary environments, price lists and other posted prices are valid for long periods of time
- Higher inflation requires *more resources* to be spent on changing the price tag of millions of goods and services in the economy at shorter intervals, thus the menu costs increase

Relative price variability

- Inflation *distorts* relative prices
- Rising nominal incomes give a *false sense* of wealth to consumers, upsetting their saving decisions
- Especially for goods and services purchased at time intervals, consumers lose the sense of *fair price*
- For some sectors it is possible to adjust prices more often while other sectors must wait longer time before adjusting prices
- Thus the *price signals* become less effective
- All these distortions mean that the markets are *less efficient* in allocating resources to their best use
- A *less efficient resource allocation* reduces the standard of living in the country

Inflation and tax distortions

- Inflation exaggerates the size of *capital gains* and increases the tax burden on this type of income
- With *progressive taxation*, capital gains are taxed more heavily
- The income tax treats the *nominal interest* earned on savings as income, even though part of the nominal interest rate *merely compensates* the saver for inflation
- In cases of high inflation like Turkey, the after-tax real interest rate may even turn out to be negative, making saving less attractive and preventing the development of financial markets

Confusion, inconvenience and dollarisation

- With continuously rising price level, it is very difficult to *compare* real revenues, costs and profits over time
- If inflation lasts for a long period of time, sooner or later people start replacing the national currency with another country's sound currency, such as the *USDollar or the Euro*
- TL has become "phoney money" (*dandik para*) during the last decade
- The move away from domestic currency is called "*currency substitution*" or "*dollarisation*"
- Dollarisation has a negative impact on the economy

Arbitrary wealth redistribution

- If inflation is *anticipated*, people can try to find ways of protecting themselves against it
- *Unanticipated inflation* redistributes wealth *arbitrarily* between debtors and creditors
- This may result in *wealth transfers* that would never be acceptable to most parties
- Debtors *benefit* from unexpected inflation because the real interest on debt contracts is reduced
- Government and businesses are debtors gaining from unexpected inflation
- Creditors *lose* from unexpected inflation for the same reason
- Depositors and banks are creditors

Conclusion

- High inflation is a fact of life in Turkey; but not everywhere and not always
- Inflation is a monetary phenomenon
- The overall level of prices in an economy adjusts to balance the supply of money with the demand for money
- Persistent growth in the quantity of money supplied leads to inflation
- Changes in the quantity of money influence nominal variables but not real variables in the long run (classical dichotomy)
- Money is neutral towards real variables

Conclusion

- A government can pay for its spending by printing more money, which results in an inflation tax
- Accelerated growth in money supply results in hyperinflation
- According to the Fisher effect, when the inflation rate rises, the nominal interest rate rises by the same amount with unchanged real interest rate
- Inflation does cause a fall in the purchasing power of the individuals because prices also determine nominal incomes
- The real costs of inflation are wasted resources, distorted prices and less efficient resource allocation

PART XI: MACROECONOMICS OF OPEN ECONOMIES

Open Economy Macroeconomics: Basic Concepts

Chapter 31

What did we learn so far?

- Macroeconomics is the study of the economy *as a whole*, in order to explain economic events that affect *many* households, firms and markets at the same time
- *Part VIII* dealt with the *Gross Domestic Product* used to measure national production and the *Price Indexes* used to measure inflation
- *Part IX* looked at the *production*, saving-investment and employment in the long run
- *Part X* introduced *money* and established the link between money and inflation in the long run
- Until now we assumed a *closed economy* without economic relations with the outside world

What we learn in Part XI?

- We relax the assumption of the closed economy and move onto the macroeconomics of the *open economy*
- Chapter 31 introduces the *basic concepts* of open-economy macroeconomics
- Such as the *Balance of Payments*, *Net Capital Outflow*, nominal and real *exchange rates*
- Chapter 32 looks at the *macroeconomic theory* of the open economy in the long run
- By showing the link between the loanable funds market and the FX market in an open economy
- And clears the way for the analysis of short run fluctuations in the economy

Open economy

- A closed economy has *no interaction* with other economies in the world
- There are no exports, no imports, no tourists, no capital flows, etc.
- An open economy *interacts freely* with other economies around the world
- It buys and sells *goods and services* in the world product markets
- It buys and sells *capital assets* in the world financial market
- Open economy refers both to merchandise and service *flows* and to financial *transactions* among countries

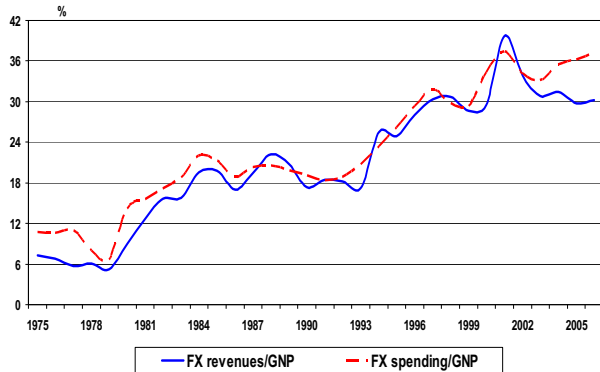
Turkey as an open economy

- There is no case of an *absolutely closed economy* in the world in the sense that all economies undertake some foreign trade, tourism, etc.
- *The share of exports of goods and services in GDP/GNP* is a reasonable measure of openness from the perspective of foreign trade
- Free movement of capital flows (also called *convertibility*) also imply an open economy
- Turkey was a relatively closed economy before 1980 and opened up since then
- TL was made convertible in 1989
- *Customs Union* with the EU since 1996 resulted in increased international trade

Turkey opens to the world 1979-2006

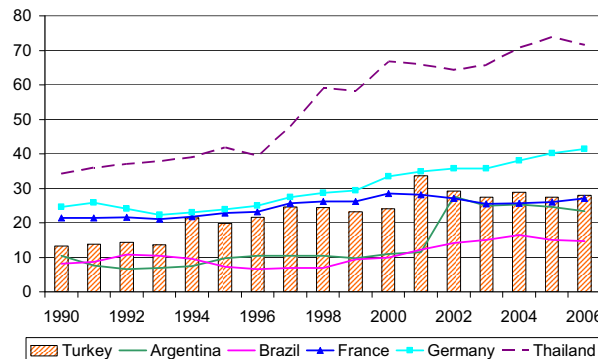
	1979	1989	1999	2006
(Bill. US \$)				
GDP	92,8	107,0	183,9	401,7
Exports	2,3	11,8	29,3	85,1
FX Revenues	4,8	22,5	53,2	121,5
Imports	5,1	15,8	39,8	127,3
FX Spending	6,3	21,5	54,6	149,1
(%)				
Industrial Exports/Total Export	34,7	78,9	90,0	95,8
Workers Rem/FX Revenues	35,3	13,5	8,5	0,9
FX Revenues / GDP	5,2	21,0	29,0	30,2
FX Spending / GDP	6,8	20,1	29,7	37,1

Turkey opens to the world 1975-2006



Open economies compared

Exports of goods and services in GDP (%)



The Balance of Payments

- All transactions of the economy with the outside world is recorded in the *Balance of Payments* (BoP)
- In Turkey, the Central Bank calculates and publishes the Balance of Payments on a monthly basis
- BoP is made of four parts
 - Current Account
 - Capital Account
 - Net Errors and Omissions
 - Reserve Changes
- The BoP is *always in balance* and can have no deficit or surplus
- Deficits or surpluses exist in its different parts but their sum is always zero

Exports, imports and net exports

- *Exports* (X) are domestically produced goods and services that are sold abroad
- TÜİK publishes monthly figures for goods exports (*Free On Board* – FOB)
- *Imports* (M) are goods and services produced abroad that are sold domestically
- TÜİK publishes monthly figures for goods imports (*Cost Insurance Freight* – CIF)
- *Net Exports* (NX) = *Trade Balance* is the value of a nation's exports minus the value of its imports
- *Attention:* for non-economists exports and imports refer only to merchandise trade and does not include trade in services

Current account

- Current account of the BoP includes all types of *FX revenues and expenditures* of the economy
- Current account is a more *comprehensive measure* of the economic relations with the outside world compared with Net Exports or Trade Balance
- Whenever an economy *earns FX* from abroad either from the sale of a good or service or as payment for a factor of production, the revenue is registered in the relevant item in the Current Account
- Whenever an economy *spends FX* abroad to buy a good or service or for a factor of production, the payments is registered in the Current Account
- Current account may be in balance, deficit or surplus

Current account: details

- Visibles (merchandise)
 - Exports of goods + “shuttle trade”
 - Import of goods + non-financial gold
 - Goods under repair and process
- Services
 - Tourism + transport
 - Construction + financial services
 - Trade and other services
- Investment income
 - FDI + portfolio + other investment income
- Current transfers
 - Workers’ remittances + official transfers

BoP: current account

I- CARİ İŞLEMLER HESABI	I- CURRENT ACCOUNT
İzmit ve Yatırım Geliri Dengesi(A+B+C) Mal ve Hizmet Dengesi (A+B)	Goods, Services and Income (A+B+C) Goods and Services (A+B)
A. DIŞ TİCARET DENGESİ	A. GOODS
1. Genel Mal Ticareti	1. General Merchandise
1.1. İhracat f.o.b.	1.1. Exports f.o.b.
1.1.1. İhracat f.o.b.	1.1.1. Exports f.o.b.
1.1.2. Bavul Ticareti	1.1.2. Shuttle trade
1.1.3. Uyarılma: Diğer Mallar	1.1.3. Adjustment: Classification
1.2. İthalat f.o.b.	1.2. Imports f.o.b.
1.2.1. İthalat c.i.f.	1.2.1. Imports c.i.f.
1.2.2. Uyarılma: Navlun ve Sigorta	1.2.2. Adjustment: Coverage
1.2.3. Uyarılma: Diğer Mallar	1.2.3. Adjustment: Classification
2. İşlem Gören Mallar	2. Goods for Processing
3. Tamir Gören Mallar	3. Repairs on Goods
4. Parasal Olmayan Altın (net)	4. Non Monetary Gold (net)
B. HİZMETLER DENGESİ	B. SERVICES
1. Taşımacılık	1. Transportation
2. Turizm	2. Travel
3. İnşaat Hizmetleri	3. Construction Services
4. Finansal Hizmetler	4. Financial Services
5. Diğer Ticari Hizmetler	5. Other Business Services
6. Resmî Hizmetler	6. Government Services
7. Diğer Hizmetler	7. Other Services
C. YATIRIM GELİRİ DENGESİ	C. INCOME
1. Doğrudan Yatırımlar	1. Direct Investment
2. Portföy Yatırımları	2. Portfolio Investment
3. Diğer Yatırımlar	3. Other Investment
D. CARİ TRANSFERLER	D. CURRENT TRANSFERS

Current account balance

- The balance of the current account summarises the *revenue-spending* relations with the world
- *Deficit* in the current account means that FX spending (imports) is higher than FX revenues (exports)
- *Surplus* in the current account means that FX revenue (exports) is higher than FX spending (imports)
- We treat *Net Exports, Trade Balance* and *Current Account Balance* as meaning the same thing
- *Attention:* deficit in merchandise trade does not always and automatically imply a deficit in the current account (see examples in table)

Examples from the world

(Bill.US\$)	Trade Balance	Invisibles	Current Account Bal.
US	-454	20	-434
EU - 11	-10	-15	-25
Germany	52	-76	-24
Brazil	-1	-25	-26
Russia	61	-15	46
Turkey	-27	17	-10
Spain	-40	22	-18

All figures for 2000

What affects net exports?

- Many factors influence the level of exports and imports and thus the *net exports* in an economy
- The tastes of consumers for domestic and foreign goods
- The prices of goods at home and abroad
- The exchange rate at which people can use domestic currency to buy foreign currencies
- The costs of international transport for goods
- The policies of the government towards international trade
- The level of economic activity as summarised by the growth rate of GDP both at home and abroad

Net Capital Outflow – NCO

- Net capital outflow* is the sum of foreign assets purchased by domestic residents and domestic assets purchased by foreigners
- Three types of assets are distinguished
- Foreign Direct Investment* – FDI – refers to investment in factories, offices, companies, etc.
- Portfolio investment* involves the stock market and long term (several years) bonds
- Borrowing* includes all types of loan transactions of the financial and non-financial sectors with non-residents
- Long term and short term (less than one year) loans are treated separately

Capital account

- In the BoP, FX flows that are not FX revenues or FX spending are recorded in the *Capital Account*
- Basically it records *financial transactions* with the world
- Its main part are
 - Foreign Direct Investment – FDI
 - Portfolio investment
 - Long term capital movements
 - Short term capital movements
- Net Errors and Omissions* capture residual FX movements
- The change in Central Bank *FX reserves* are also recorded in the BoP

BoP: capital account

B. SERMAYE HESABI	B. CAPITAL ACCOUNT
C. FINANS HESABI	C. FINANCIAL ACCOUNT
8. Yurtdışında Doğrudan Yatırım	8. Direct Investment Abroad
9. Yurtiçinde Doğrudan Yatırım	9. Direct Investment in Turkey
10. Portföy Hesabı-Varıllıklar	10. Portfolio Investment- Assets
11. Portföy Hesabı-Yükümlülükler	11. Portfolio Investment- Liabilities
11.1. Hissse Senetleri	11.1. Equity Securities
11.2. Borç Senetleri	11.2. Debt Securities
12. Diğer Yatırımlar-Varıllıklar	12. Other Investment- Assets
12.1. Merkez Bankası	12.1. Monetary Authorities
12.2. Genel Hükümet	12.2. General Government
12.3. Bankalar	12.3. Banks
12.4. Diğer Sektörler	12.4. Other sectors
13. Diğer Yatırımlar-Yükümlülükler	13. Other Investment- Liabilities
13.1. Merkez Bankası	13.1. Monetary Authorities
13.2. Genel Hükümet	13.2. General Government
13.3. Bankalar	13.3. Banks
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D. NET HATA VE NOKSAN	D. NET ERRORS AND OMISSIONS
E. REZERV VARLIKLAR (*)	E. RESERVE ASSETS
14. Rezerv Varlıklar	14. Reserve Assets
15. Uluslararası Para Fonu Kredileri	15. Use of Fund Credits and Loans
16. Ödemeler Dengesi Finansmanı	16. Exceptional Financing

Current account 1994-2006

Billion US\$	1994-2006	Share in GNP (%)	1994-2000	2002-2006	2006
Exports (TUIK - fob)	507	18	171	305	86
Imports (TUIK - cif)	-808	-28	-292	-475	-140
Trade Balance (TUIK)	-301	-10	-122	-169	-54
Shuttle Trade	48	2	24	22	6
Trade Balance (fob)	-186	-6	-79	-105	-38
Gold	-25	-1	-10	-14	-3
Merchandise Balance	-213	-7	-87	-120	-41
Tourism Revenues	123	4	42	73	17
Total Service Revenues	243	8	120	107	24
Transfers	42	1	31	8	2
Total Service + Transfers	285	10	151	115	26
Tourism Spending	-24	-1	-10	-12	-3
Total Service Spending	-107	-4	-53	-47	-11
Services + Transfers Balance	177	6	98	68	15
Merch.+Service+Trans. Balance	-35	-1	11	-52	-26
Investment Income Balance	-56	-2	-23	-28	-7
Current Account Balance	-91	-3	-14	-81	-33
Net Error and Omission	9	0	3	7	-2
External Balance	-83	-3	-11	-73	-35

Capital account 1994-2006

Billion US\$	1994-2006	%	1994-2000	2002-2006	2006
External Balance	-83	100	-11	-73	-35
Foreign Direct Investment	38	-46	3	32	19
Outgoing	-6	8	-2	-4	-1
Incoming	45	-54	6	36	20
Real Estate	7	-9	0	7	3
Portfolio Inv. (stocks)	12	-14	2	10	2
Non-debt Finance	50	-60	5	42	21
Finance Requirement	-33	40	-6	-31	-14
TL bills purchased	9	-11	-7	21	6
Bonds sold	24	-29	13	11	3
IMF Loan	7	-9	4	-7	-5
Other Gov't and CB	-16	19	-7	-8	-2
Total Public Sector	25	-31	3	17	3
Securities bought abroad	-16	19	-5	-10	-4
Borrowing by Banks	28	-34	10	28	11
Borrowing by Others	64	-77	20	46	21
Total Private Sector	64	-78	25	64	28
Total Foreign Borrowing	82	-99	28	82	31
CB Reserve change	-35	42	-20	-35	-6
Banks reserve change	-15	18	-2	-15	-10
Total Reserve change	-50	61	-22	-50	-16

Saving-investment in open economy

- Remember the *national income identity*

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

- National saving can now be written as

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

$$S = I + NX = I + NCO$$

$$\text{Saving} = \text{Domestic Investment} + \text{Net Capital Outflow}$$

- This is a very important result
- Positive NCO means a *surplus* in the current account and implies saving is higher than investment
- Negative NCO means a *deficit* in the current account and implies investment is higher than saving

Domestic and foreign saving

- We can restate the relation between saving and investment for the open economy
- Open economy permits domestic investment to be different (higher or lower) from national savings
- Total savings are now equal to

$$S_T = S_D + S_F$$

Total Saving = Domestic Saving + Foreign Saving

- Investment will now be equal to total saving

$$S_T = S_D + S_F = I$$

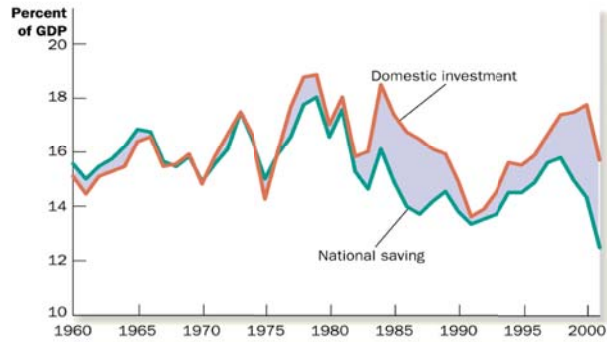
- As $S_F = -NCO = -NX$, a deficit in the current account increases foreign savings and therefore investment

International flows: summary

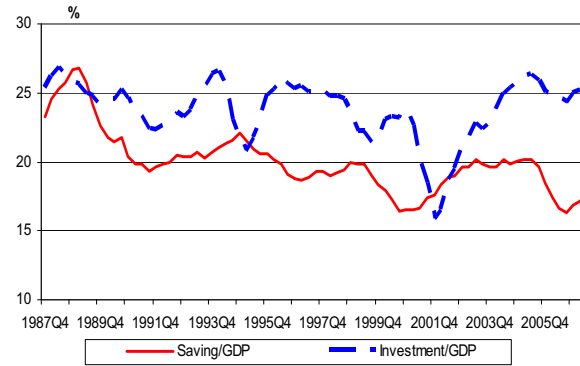
Trade Deficit	Balance Trade	Trade Surplus
Export < Imports	Exports = Imports	Exports > Imports
Net exports < 0	Net exports = 0	Net exports > 0
$Y < C + I + G$	$Y = C + I + G$	$Y > C + I + G$
Saving < Investment	Saving = Investment	Saving > Investment
Net capital outflow < 0	Net capital outflow = 0	Net capital outflow > 0

US: saving and investment

(a) National Saving and Domestic Investment (as a percentage of GDP)



Turkey: saving and investment



Exchange rates

- International transactions can only happen if prices in one currency can be transformed into prices in another currency
- This vital transformation is undertaken by the *exchange rates*
- Once we know the exchange rate between any two currencies, we can immediately compare local prices in one country with the prices in the other country
- We can distinguish three different exchange rates
 - *Nominal* exchange rates
 - *Real* exchange rates
 - *Purchasing Power Parity (PPP)* exchange rates

Nominal exchange rate

- The nominal exchange rate is the rate we see everyday in the markets
- Nominal exchange rate is the rate at which a person can buy or sell the currency of one country with the currency of another country
- The nominal exchange rate between two currencies can be expressed in two ways
 - In units of *foreign currency per one TL*
 - In units of *TL per one unit of the foreign currency*
- The first is used by most countries
- Due to high inflation, we have been using the second method for the nominal exchange rate in Turkey

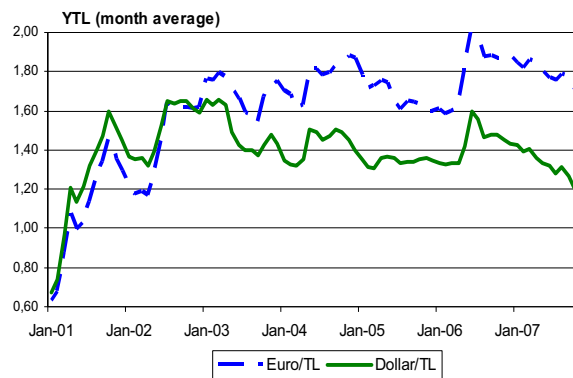
The exchange rate for TL

- Currently, one US Dollar is exchanged for one YTL and thirtyfive Ykr
 - Either 1 US\$ = 1.50 YTL
 - Or 1 YTL = 1 / 1.50 US\$
- The first expression gives us the US\$/TL nominal exchange rate for the *Americans*
- The second expression gives us the TL/US\$ nominal exchange rate for the *Turks*
- All major currencies are quoted domestically in the second way
- For the YTL, we could use 1 YTL as the unit of account and express the exchange rate as
1 YTL = 0.67 US\$

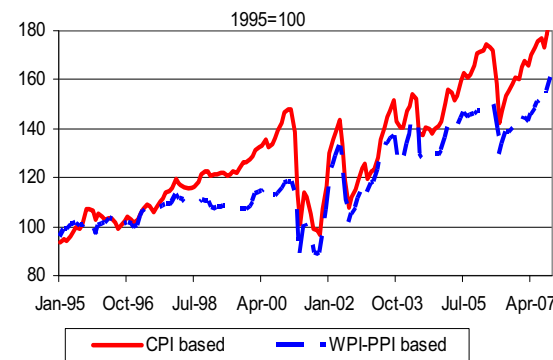
Changes in the exchange rate

- If YTL buys more foreign currency, we speak of an *appreciation* of the YTL
 - Example: when the YTL/US\$ exchange rate moved from 1.60 to 1.30 YTL has appreciated
 - Because 1 YTL buys 0.77 US\$ instead of 0.63
- If YTL buys less foreign currency, there is a *depreciation* of the YTL
 - Example: when the YTL/US\$ exchange rate moves from 1.30 to 1.60 YTL has depreciated
 - Because 1 YTL buys 0.63 US\$ instead of 0.77
- An appreciation is also called *revaluation*
- A depreciation is also called *devaluation*

Turkey: exchange rates 2001-2007



Turkey: real exchange rate 1995-2007



Real exchange rate

- *The real exchange rate* is the rate at which a person can trade the goods and services of one country for the goods and services of the other country
- The real exchange rate compares the prices of domestic goods with the prices of foreign goods
- For example, if a BigMac costs \$ 2.50 in the US and YTL 2.50 in Turkey, the real exchange rate is 1 \$ = 1.00 YTL even if the nominal exchange rate is different (*The Economist BigMac Index*)
- *Purchasing Power Parity exchange rate* is calculated by the World Bank on the basis of the prices of a basket of goods and services

Calculating the real exchange rate

- The real exchange rate depends on the nominal exchange rate and the prices of goods in the two countries measured in *local currencies*

Real exchange rate =

$$\frac{\text{Nominal exchange rate} \times \text{Domestic price}}{\text{Foreign price}}$$

- When a country's real exchange rate is low, its goods are cheap relative to foreign goods and its exports will increase while imports decrease
- The opposite if the real exchange rate is high
- Accordingly we talk about an *undervaluation* or *overvaluation* of the currency

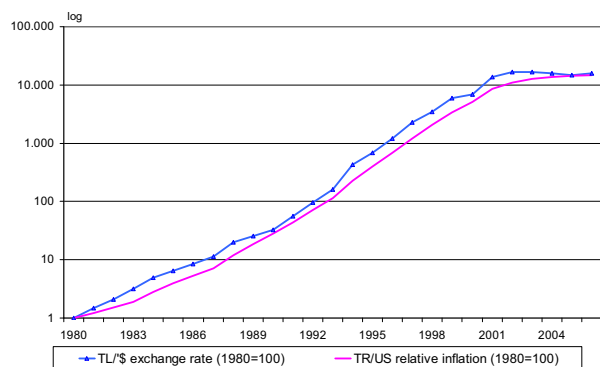
Purchasing-power parity theory

- The *purchasing-power parity theory* is the simplest and most widely accepted theory explaining the variation of exchange rates over time
- According to this theory, in the long run a unit of any given currency should be able to buy the same quantity of goods in all countries
- The *law of one price* says that a good must sell for the same price in all locations
- Otherwise there exists unexploited profit opportunities of buying cheaply and selling expensively
- Exchange rates will therefore change in such a way that prices become equal everywhere

Inflation and the exchange rate

- The purchasing-power parity theory tells us that the nominal exchange rate between the currencies of two countries must reflect the *difference price levels* in those countries
- Countries with relatively high inflation should have *nominally depreciating* currencies and countries with relatively low inflation should have *nominally appreciating* currencies
- This theoretical view is confirmed by the real world
- Almost all of the movements in nominal exchange rates *in the long run* can be explained by inflation differentials among countries

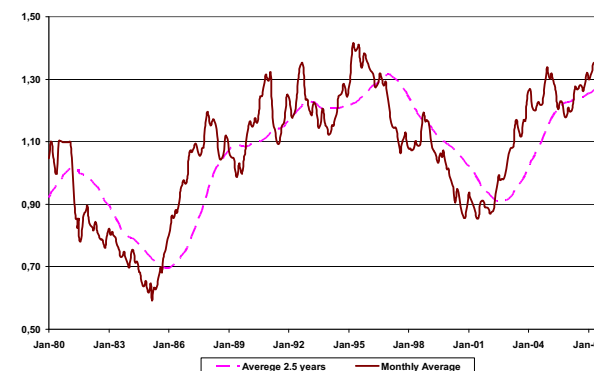
Turkey: inflation and the exchange rate



Limitations of the theory

- First and foremost, the theory holds *in the long run*, meaning over a period of several years
- Many goods in the economy, mainly services are not easily traded or shipped from one country to another and large price differences may persist
- These are called *non-tradables*
- Price vary even among traded goods (*tradables*)
- Capital movements in and out of the country can have a very strong effect on the real exchange rate *in the short run* even if their effect in the long run is much smaller
- USA and EU have similar inflations but large fluctuations in the Euro/\$ exchange rate

Fluctuations in Euro/\$ parity



Conclusion

- An open economy corresponds to free flows of goods and services as well as financial transactions with the outside world
- Balance of Payment records the transactions of the economy with the world
- Net exports are the value of domestic goods and services sold abroad minus the value of foreign goods and services sold domestically
- Net capital outflow is the acquisition of foreign assets by residents minus the acquisition of domestic assets by foreigners
- Net capital outflow is always equal to net exports in the economy

Conclusion

- The nominal exchange rate is the relative price of the currencies of two countries
- Exchange rate should be expressed in terms of the local currency
- The real exchange rate is the relative price of the goods and services of two countries
- According to the theory of purchasing-power parity, a unit of currency should buy the same quantity of goods in all countries
- The nominal exchange rate between the currencies of two countries should reflect the price levels of the countries

A Macroeconomic Theory of the Open Economy

Chapter 32

What we learn in this Chapter?

- In *Chapter 31* we defined the basic concepts of an open economy, such as the *Balance of Payments*, $NX = NCO$ and the *exchange rate*
- In *Chapter 32* we incorporate these into our analysis of the economy in the long run
- Net capital outflow requires a modification in the *market for loanable funds* in order to take into account inward and outward capital movements
- For the exchange rates we need a new market: the *market for foreign exchange*, where the exchange rate will be determined
- *Attention*: we are still in the long run

Key variables in an open economy

- Macroeconomic variables of an open economy are:
 - National saving
 - Domestic investment and net capital outflow
 - Net exports
- The values of these variables are determined through *the interaction* of the loanable funds market the market for foreign currencies
- First we look at the *open-economy loanable funds market* without the FX market
- Second we look at the *FX market* on its own
- The long run equilibrium of the open economy will be established by the *simultaneous working* of these two markets

The market for loanable funds

- Review of the loanable funds market from Ch. 26
- *Financial markets* and *financial intermediaries*, jointly called the *financial system*, coordinate the saving and investment decisions of the economy
- This coordination happens in the loanable funds market
- Supply of loanable funds comes from those economic actors who wish *to save and loan out* part of their income
- Demand for loanable funds comes from those who wish *to borrow to spend* more than their income
- The supply and demand for loanable funds depend on *the real interest rate*

Equilibrium in the market for loanable funds

- It is the movements in the real interest rate which equates the quantity of loanable funds supplied with the quantity of loanable funds demanded
- Therefore, equilibrium in the loanable funds market determines *the real interest rate*
- If either the supply increases or demand decreases, the real interest rate will *go down*
- If either the supply decreases or demand increases, the real interest rate will *go up*
- In other words changes in the *real interest rate* reflect changes in the supply and demand for savings in the loanable funds market

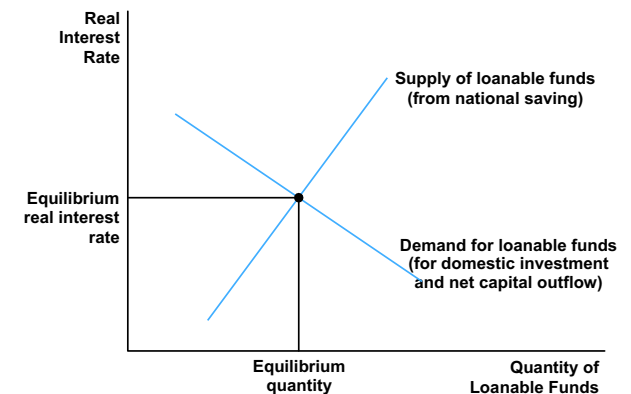
Supply & demand for loanable funds

- *Supply* of loanable funds come from *national savings*
- Remember that national savings is made of private savings and public saving

$$S = Y - C - G = (Y - T - C) + (T - G)$$
- *Demand* for loanable funds in the open economy comes from *domestic investment* and *net capital outflow* ($I + NCO$)
- At the equilibrium real interest rate we get

$$S = I + NCO$$
- In other words, national savings are invested either domestically or abroad

Market for loanable funds



$NCO = NX$

- *Net capital outflow* NCO and *net exports* NX represent the two sides of the same phenomenon
- In Chapter 31 we underlined the fact that net exports and net capital flow must, by definition, *balance each other*

$$NCO = NX$$

- For the long run, we assume that *Net Errors and Omissions* and *Changes in FX reserves* items in the BoP will be negligible
- Which means that to any deficit (surplus) in the *Current Account* of the BoP will correspond a surplus (deficit) of the same magnitude in the *Capital Account* of the BoP

The market for FX

- The identity $NX = NCO$ represents the two sides of the *foreign exchange market* in which TL is traded for other currencies (US\$, Euro, etc.)
- The FX market in Turkey is by definition in TL
- NCO represents the quantity of TL *supplied* to the FX market for the purpose of buying assets abroad
- NX represents the quantity of TL *demand*ed from the FX market for the purpose of buying Turkish net exports of goods and services
- *Attention*: in Turkey, the FX market must be visualised not in terms of the supply and demand of FX but as supply and demand of TL
- This is true for every country

Demand for TL in the FX market

- The *demand for TL* at the FX market corresponds to the *supply of FX* to the market
- Demand for TL comes from the *net exports* NX (or the *current account* of the BoP)
- Demand for TL is *downward sloping* because a higher exchange rate makes domestic goods more expensive, leading to less exports and more imports and therefore less demand for TL
- Demand for TL at the FX market need not be positive
- *Negative value* of the demand for TL means net exports are negative: i.e. There is a current account deficit

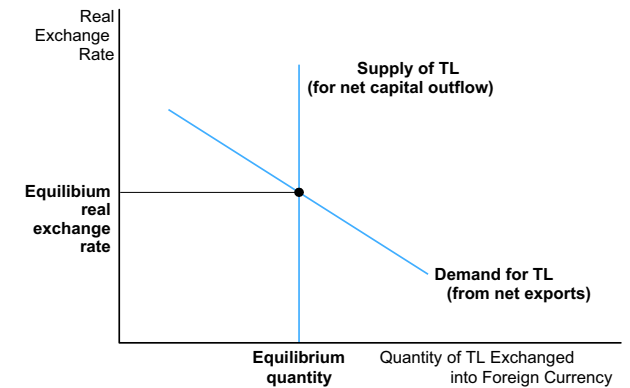
Supply of TL in the FX market

- The *supply of TL* at the FX market corresponds to the *demand of FX* from the market
- Supply of TL comes from the *net capital outflow* NCO (the *capital account* of the BoP)
- Supply of TL is *vertical* because the quantity of TL supplied for net foreign investment is unrelated to the real exchange rate
- In a moment we shall see what determines NCO
- Supply of TL at the FX market need not be positive
- *Negative value* of the supply of TL means net capital outflow is negative: i.e. there is a capital account *surplus* which offsets a current account deficit

Equilibrium in the FX market

- The real exchange rate adjusts to balance the supply and demand of TL at the FX market
- At the *equilibrium real exchange rate*, the demand for TL from net exports exactly balances the supply of TL to be exchanged into foreign currency to buy assets abroad
- If NX is *negative* at the equilibrium (current account *deficit*), NCO will also be negative (capital account *surplus*)
- If NX is *positive* at equilibrium (current account *surplus*), NCO will also be positive (capital account *deficit*)
- It is important to understand this relation

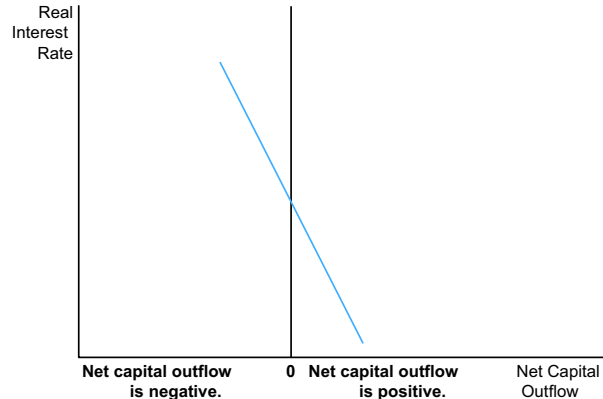
Equilibrium in the FX market



NCO links the two markets

- NCO is *the link* between the loanable funds market and the FX market because it involves them both
- *What determines* net capital outflow?
- The key determinant of NCO is *the real interest rate*
- At high real interest rates the attraction of foreign assets will be low for residents and high for non-residents; opposite for low real interest rates
- In the market for loanable funds, NCO is a part of the *demand for funds*
- In the market for FX, NCO is the *supply of TL*
- Therefore any change in the real interest rate affects the FX market and thus the real exchange rate

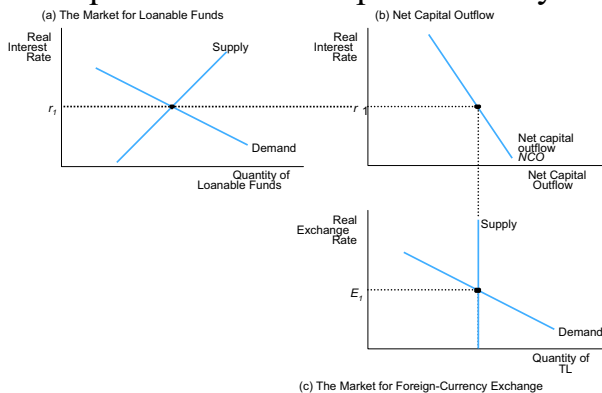
NCO and the real interest rate



Equilibrium in the open economy

- We have *two markets*: loanable funds market and the FX market
- We have *two prices*: the real interest rate and the real exchange rate
- Equilibrium in the open economy happens through the interaction of these two markets
- Both prices adjust simultaneously to balance supply and demand in these two markets
- As they move, they also determine the macro-economic variables of national saving, domestic investment, net foreign investment and net exports
- In the open economy, the real interest and exchange rates are *interrelated*

Equilibrium in the open economy



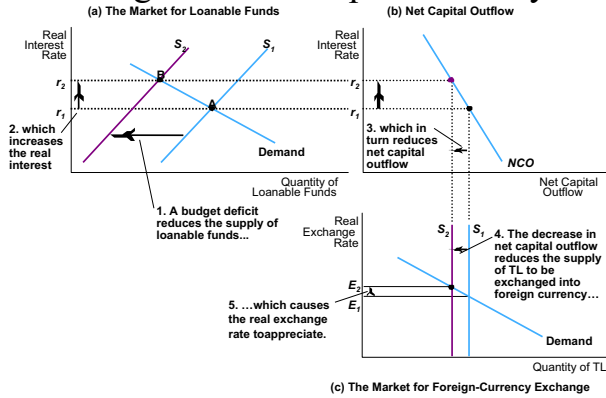
Changes in equilibrium

- In order to understand better how the two markets reach simultaneous equilibrium, we will look at how changes in policy or events affect the equilibrium in the open economy
- Each time there is a change of a variable, there will be *new equilibrium values* for the real interest and exchange rates
- We explore three cases
 - *Government budget deficit* shifts the supply of loanable funds
 - *Trade policy* shifts the NX curve
 - *Political and economic instability* shifts the NCO curve

Budget deficits and equilibrium

- We start by an increase in government spending G or a reduction in taxes T , leading to a change in the budget balance (*budget deficit*)
- *Loanable funds market*: Budget deficit reduces national saving, shifts the supply of loanable funds to the left and raises the real interest rates
- *NCO*: Higher interest rates reduce NCO
- *FX market*: Supply of TL shifts to left, meaning less supply of TL to be exchanged into FX causing the real exchange rate to appreciate
- Budget deficit *raises interest rates*, crowds out domestic investment, *appreciates the TL* and causes a current account deficit

Budget deficit in open economy



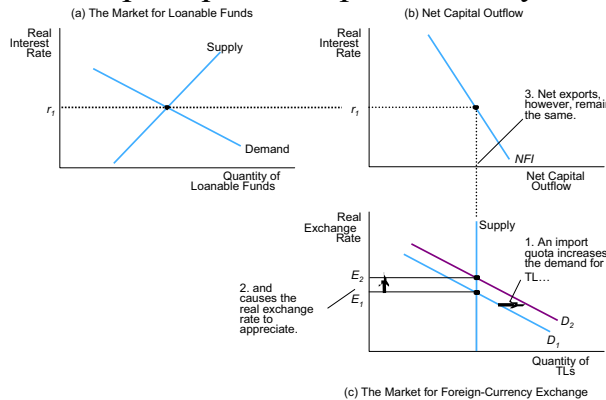
The logic of the markets

- Why does an increase in the budget deficit result with an *appreciation* of the currency?
- When the government *spends more*, the economy faces two options
- One way is to reduce total demand in the economy by having someone spend less
- Higher interest rates reduce private investment (*crowding out*)
- Another way is to increase supply in the economy by importing more from abroad
- Currency appreciation allows imports to increase (*current account deficit*)
- It is all simple logic

Trade policy: import quota

- Government may decide to influence directly the imports or exports of a country
- *Tariff*: a tax on imported goods
- *Import quota*: a limit on the quantity of a good to be imported into the country
- Assume government introduces an import quota
- It has no effect on the loanable funds market and the interest rate remains unchanged
- NX curve shifts to the right and demand for TL from NX is lower but NCO is constant
- This leads to an *appreciation* of the currency as exports fall to compensate for falling imports

Import quota in open economy



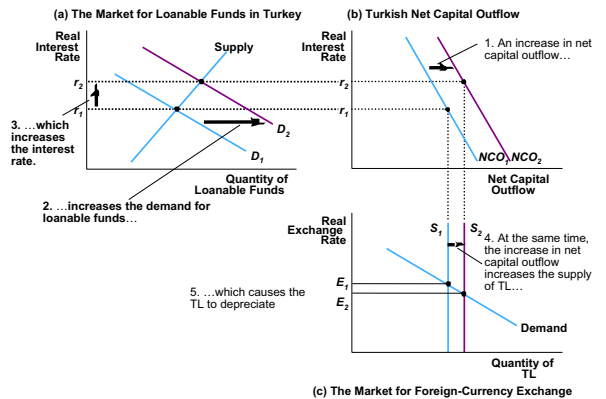
The logic of the markets

- Again, let's see why the efforts of the government to reduce the current account deficit by import quotas only results in *currency appreciation*
- *Trade policy* has no effect on national savings, domestic investment, net capital outflow and therefore the interest rate remains unchanged
- Under these circumstances less imports mean the economy also needs *less exports* to pay for the imports
- And the economy ends up by exporting less because it is importing less
- It is all simple logic

Politics in open economy

- Political instability in a country may cause *capital flight*
- Capital flight is a large and sudden movement of funds out of a country, as after February 2001 in Turkey
- Capital flight shifts the *NCO curve to right* as people increase the supply of TL to buy FX
- Resulting in higher real interest rates and a lower real exchange rate
- A major problem of high inflation countries is *more volatile NCO curves*
- Sudden and unexpected shifts in NCO are called an *attack on the currency* or *financial crisis*

An attack on the TL



The logic of the markets

- When economic actors expect things to go wrong in the country, they try to *protect their savings* from potential problems by sending them abroad
- One way to solve this problem is to offer a *higher interest rate* to them so that they stay in domestic assets
- Another way is for the economy to produce *more FX* by higher exports and lower imports so that the surplus can be invested abroad
- That's why the interest rate rises while the currency falls
- It is all simple logic

February crisis in Turkey

- When investors around the world observed the political problems in Turkey in *February 2001*, they sold some of their assets in TL and used the proceeds to buy assets in other countries
- This corresponded to a big *upward jump* in Turkey's NCO curve
- Interest rates also jumped as demand for loanable funds increased substantially along with the shift in the NCO curve
- TL *rapidly depreciated* because of the excess supply of TL at the FX market despite the big hike in the real interest rate
- That's how *markets work* in an open economy

Conclusion

- In the market for loanable funds, the real interest rate adjusts in order to balance supply of loanable funds (from national saving) and demand for loanable funds (from domestic investment and net capital outflow)
- In the market for foreign exchange, the real exchange rate adjusts in order to balance the supply of TL (for net capital outflow) and the demand for TL (for net exports)
- Net capital outflow is the link between the two markets
- The two markets reach equilibrium simultaneously

Conclusion

- Budget deficits reduce national savings, drive up the real interest rate and cause an appreciation of TL and therefore a fall in NX
- Trade restrictions shifts the NX curve and cause an appreciation of TL which offsets the increase in NX
- Political instability in a country can lead to capital flight which shifts the NCO curve, causing a depreciation of the currency while the real interest rate goes up
- Political troubles caused the attack on TL in February 2001 and therefore the crisis

PART XII: SHORT-RUN ECONOMIC FLUCTUATIONS

AGGREGATE DEMAND AND AGGREGATE SUPPLY

Chapter 33

What did we learn so far?

- Macroeconomics studies the economy *as a whole*
- It aims to explain economic events that affect *many* households, firms and markets at the same time
- *Part VIII* introduced the Gross Domestic Product used to measure production and the Price Indexes used to measure inflation
- *Part IX* looked at the production, saving-investment and employment in the long run
- *Part X* introduced money and established the link between money and inflation in the long run
- *Part XI* introduced trade and financial flows with the outside world: the analysis of the open economy in the long run

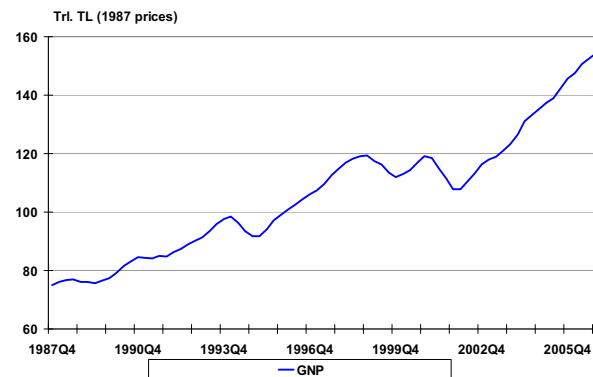
What we learn in Part XII?

- We now relax the assumption of the long run and look at the economy *in the short run*
- All the economies in the world exhibit *fluctuations* at the level of output, inflation, unemployment, interest rates, exchange rates in the short run
- Our aim is to explain these fluctuations
- Chapter 33 defines the model of *Aggregate Demand and Aggregate Supply*, which constitutes the backbone of the analysis of the short run
- Chapter 34 looks at the effects of *monetary and fiscal policy* in the short run
- Chapter 35 explores the *trade-off* between inflation and the level of output in the short run

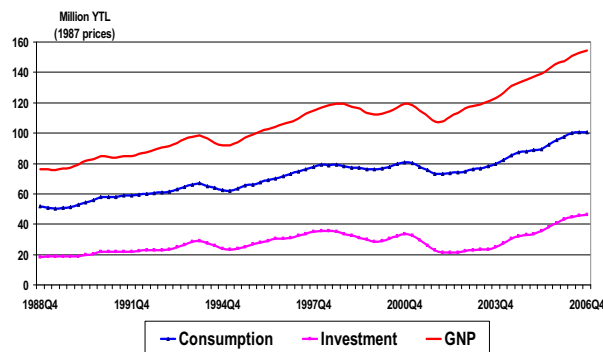
Short-run economic fluctuations

- Economic activity *fluctuates* in all the economies in the world from year to year
- For most years, production of goods and services rise (*expansion, growth, boom*)
- In some years production of goods and services shrinks, i.e. growth becomes negative (*recession*)
- A *depression* is a severe and lasting recession
- Economic fluctuations are *irregular and unpredictable* both in frequency and in duration
- Most macroeconomic variables *fluctuate together*
- As output falls, unemployment rises
- Changes in real GNP are inversely related to changes in the unemployment rate

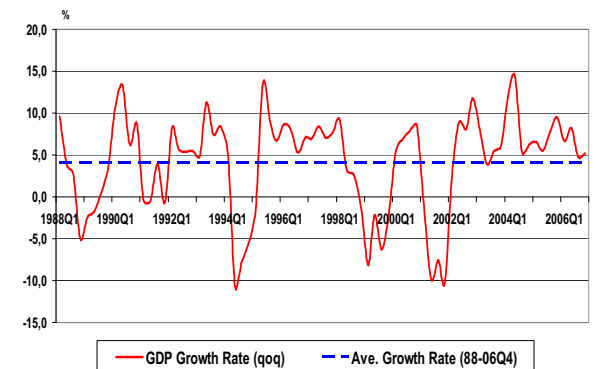
Turkey: GNP 1987-2006



Turkey: GNP, consumption and investment: 1987 to today



Turkey: volatility of growth



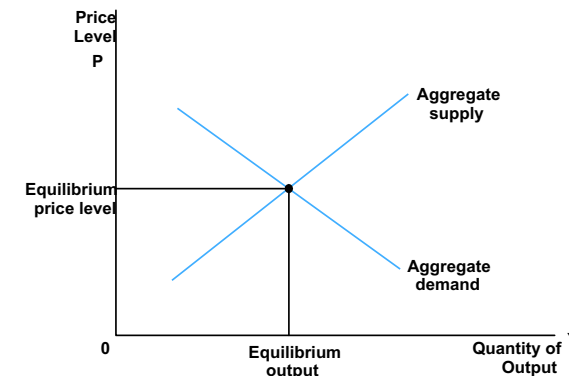
The short-run and the long-run

- What we learned about the long-run in the three previous parts reflect the *Classical Theory*
- Most economists believe that classical theory describes the real world in the long run *but not* in the short run
- The important characteristic of the long run is that changes in the money supply affect nominal variables *but not* real variables
- Defined as “*classical dichotomy*” and “*monetary neutrality*”
- These assumptions don’t hold when studying year-to-year changes in the economy (the short-run)
- *Money matters* in the short-run

Basic model for the short-run

- Most economists use the model of *aggregate demand and aggregate supply* to explain short-run fluctuations of economic activity around a long-run trend
- The model is based on two variables
 - The economy’s output of goods and services Y as measured by *real GDP* (or alternatively GNP)
 - The change in the overall price level P as measured by the *CPI* or the *GDP deflator*
- The model works by defining two distinct curves for aggregate demand and aggregate supply, similar to single market demand-supply curves
- Their intersection gives the short-run equilibrium

AD-AS equilibrium



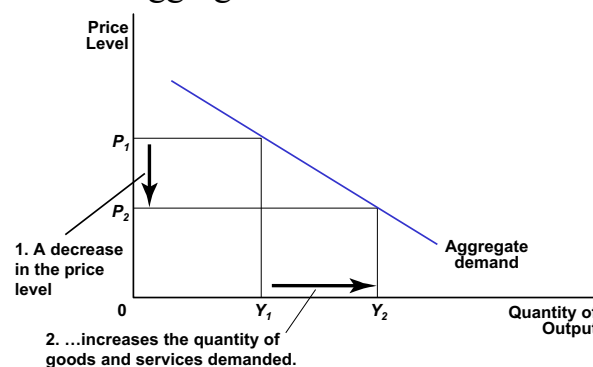
Aggregate demand

- The aggregate demand curve shows the quantity of goods and services households, firms, the government and the outside world wants to buy *at any price level*
- The four components of GNP contribute to the aggregate demand for goods and services

$$Y = C + I + G + NX$$
- We can express aggregate demand Y as a function of the *price level* P , given the consumption function, investment demand, government taxes, government spending and the net exports

$$Y = F(P | C, I, G, T, X, M)$$
- Aggregate demand curve is *downward sloping*

Aggregate demand curve



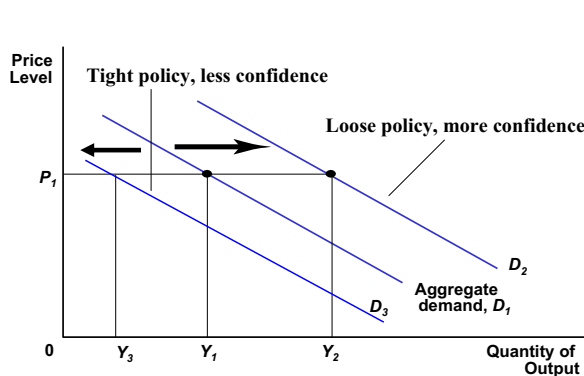
Why is AD downward sloping?

- Three reasons why a fall in the price level means more demand for goods and services
- *The wealth effect* on consumption: lower prices make consumers feel wealthier, which stimulates demand for consumption of goods and services
- *The interest rate effect* on investment: lower prices reduce the demand for money and thus the interest rate, leading to more investment spending
- *The exchange-rate effect* on net exports: lower interest rates depreciates the currency, leading to more exports and less imports (increase in net exports) and therefore more spending on domestic goods and services

Shifts in the AD curve

- Shifts in the AD curve may arise because of changes in private behaviour or public policy
- *Private behaviour*: changes in spending plans by consumers and firms
- If there is a bigger willingness to consume or to invest, or a stronger demand for exports, AD shifts to the right
- In the opposite case, AD shifts to the left
- *Public policy*: changes in fiscal or monetary policy
- Loose fiscal or monetary policy shifts AD to the right
- Tight fiscal or monetary policy shifts AD to the left

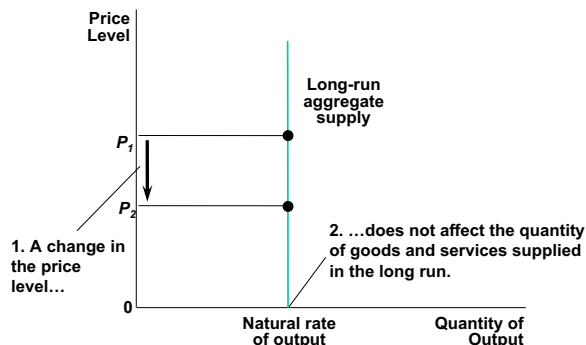
Shifts in the AD curve



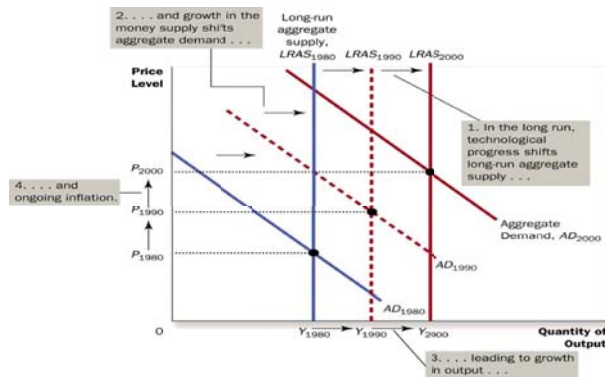
Aggregate supply

- The aggregate supply curve shows the quantity of goods and services that firms choose to produce and want to sell *at any price level*
- There are two different aggregate supply curves depending on the time scale
- *The long-run aggregate supply curve* (LRAS) is vertical because output is independent of the price level in the long-run
- LRAS depends on the production function or the resources and technology available to the economy
- *The short-run aggregate supply curve* (SRAS) is upwards sloping because outputs responds positively to rises in the price level in the short-run

AS in the long-run



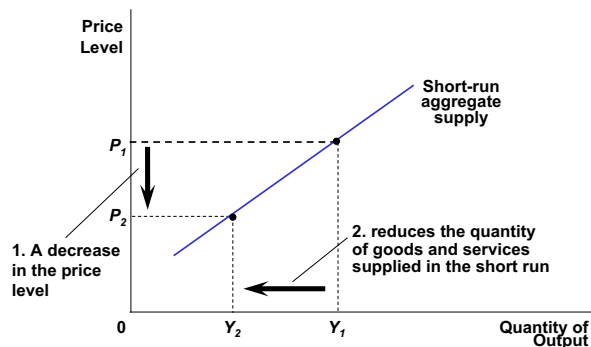
Inflation and growth in the long run



Short-run aggregate supply

- The short-run aggregate supply curve reflects the *cost structure* of the economy
- More output in the short run can only be obtained at higher cost, therefore at higher prices
- Lower prices imply less output
- Three reasons why SRAS slopes upwards
- Sticky-Wage Theory*: wages adjust slowly and higher prices increase employment
- Sticky-Price Theory*: prices adjust slowly and an unexpected rise in prices leave some firms with low prices and higher sales
- Misperceptions Theory*: firms mistake inflation with relative price increases

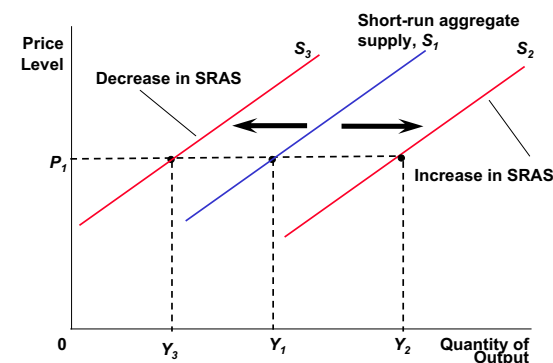
SRAS curve



Shifts in the SRAS curve

- The aggregate supply curve reflects the cost structure of the economy and shifts with changes in the cost structure
- Changes in the *prices of factors* shifts the SRAS curve: wages, exchange rate, world prices of commodities, government administered prices, etc.
- An increase in any of these shifts SRAS left
- Factor productivity*: higher productivity means lower costs and shifts SRAS right
- Taxes and regulations*: any increase in costs result in a leftward shift of SRAS
- Expectations*: if firms expect higher factor or output prices in the future SRAS shifts left

Shifts in the SRAS Curve



The aggregate supply equation

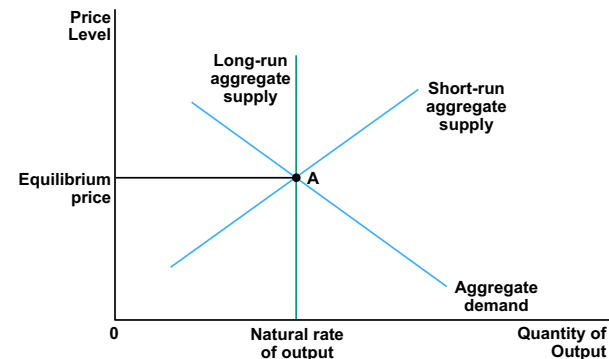
- For our purposes the similarities of the three theories are more important than the differences
- All three theories suggest that output deviates from its natural rate when the price level deviates from the price level that people expected
- We can express this relation mathematically
- a* measures the responsiveness of output to price
- Example: if actual price level is higher than expected, output will also be higher than natural

$$\text{Quantity of output supplied} = \text{Natural rate of output} + a \left(\text{Actual price level} - \text{Expected price level} \right)$$

Long-run equilibrium of AD-AS

- The intersection of the aggregate demand curve with the long- and short-run aggregate supply curve at the same points corresponds to the *long-run equilibrium* of the economy
 - Output is at its natural rate
 - There is no unemployment
 - There is no upward pressure on the price level
- The long run equilibrium corresponds to *macroeconomic stability*
- If the three curves (AD, SRAS, LRAS) *do not* intersect at the same point, then something is wrong in the economy: either a recession or rising inflation or both are happening

Economy at long-run equilibrium



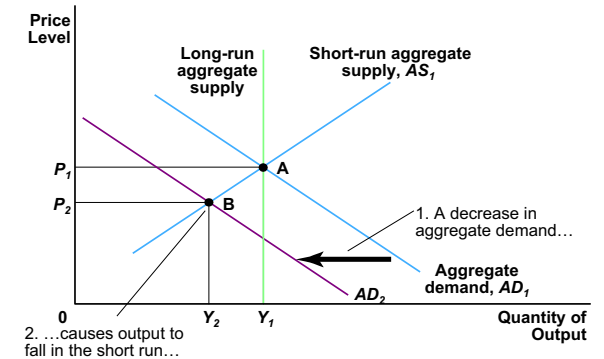
Two causes of economic fluctuations

- From the analysis above, it is clear that any deviation from the long-run equilibrium may happen either because the AD curve or the SRAS curve is *not at the right place*
- Recessions may be caused by shifts in aggregate demand (*demand shocks*) or shifts in aggregate supply (*supply shocks*)
- In both cases, the response of *economic policy* to the shock is of key importance
- Government may use *fiscal and monetary policy* to fight against the recession or may do nothing and wait for the markets to work it through
- Let us see some examples

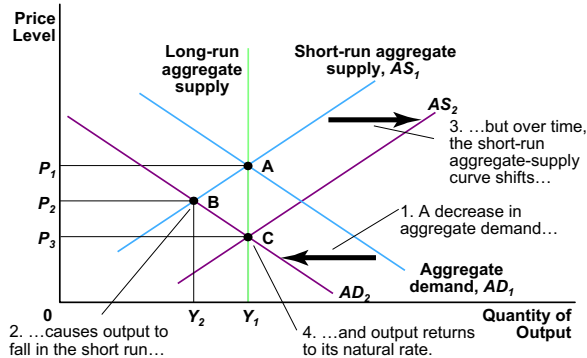
A fall in aggregate demand

- Start with the *shift to left* of the AD curve
- What may cause it? Political turbulence, consumer-investor pessimism or a recession in major markets abroad, etc. may reduce aggregate demand
- Both output Y and the price level P fall; recession increases unemployment in the economy
- Assume policy remains *unchanged*
- Unemployment reduces real wages, falling imports appreciates the currency and these imply that after a while the *SRAS* shifts to *right*
- Eventually the economy will reach a new long-run equilibrium but with a lower level of prices P
- Shift in AD causes *later* SRAS to shift

A Decrease in Aggregate Demand



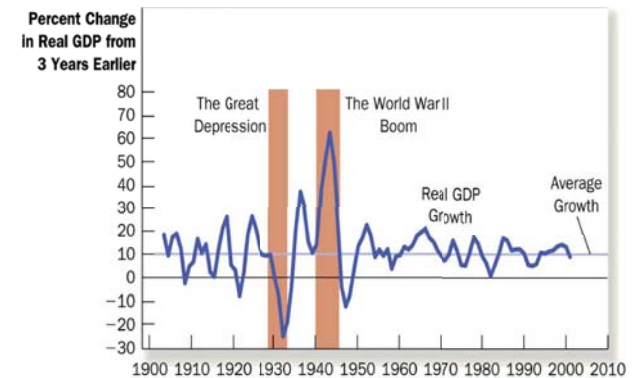
A Decrease in Aggregate Demand



Two big shifts in aggregate demand

- We use US economic history to illustrate some examples of major shifts in aggregate demand
- US economy underwent the biggest downturn in its history in 1930s after a stock market crash in 1929
- During the Great Depression unemployment jumped from 3 to 25 %
- Economists agree that it was caused by the big fall in aggregate demand
- The fast growth of the US economy in turn can be explained by the effects of World War 2 on demand
- Government purchases of arms increased substantially with the war effort, leading to big jumps in aggregate demand

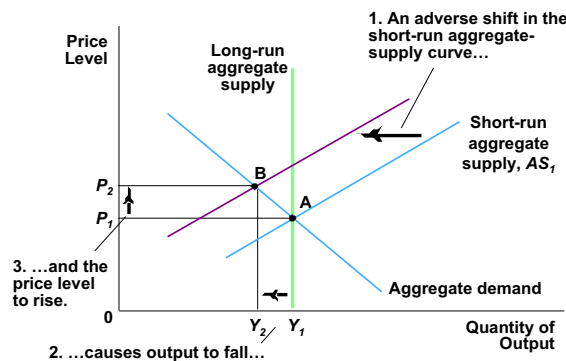
US: Great Depression and WW2



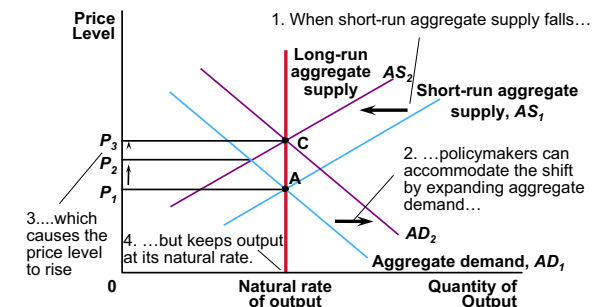
An adverse shift in aggregate supply

- Positive* shift (right) in SRAS implies *falling costs*
- Adverse* shift (left) in SRAS implies *rising costs*
- A devaluation, big jump in the price of oil, pessimist expectations about politics, etc.
- In case of an *adverse shift*, output Y falls but the price level P rises
- Falling output (recession) with rising prices (inflation) gave birth to a new word: *stagflation*
- Assume policy makers *accommodate* the supply shock by loose fiscal and monetary policy
- AD shifts right; at new long-run equilibrium both output and prices are higher
- The cost of the shorter recession is *inflation*

Adverse shift in SRAS



Accommodating adverse supply shift



Policy response to recession

- We looked at two responses by the government to any fall in output below long-run equilibrium
- *Do nothing* and wait for prices and wages to adjust to the new situation: corresponding to a shift to the right of the SRAS curve
- Or use *fiscal and monetary policy* to increase aggregate demand, which restores output and cause price increases as a by-product
- The first seems a better way but there is a catch
- Adjustment in the SRAS takes *much longer* than stimulating demand with policy
- The economy stays in recession much longer without policy measures

Oil prices and policy

- When the price of oil increased over *ten-fold* from 1974 to 1980, governments everywhere faced these hard choices
- *Tight* fiscal and monetary policy meant a long recession immediately but no future inflation
- *Loose* fiscal and monetary policy meant a short lived recession immediately but problems with inflation in the future
- The *policy trade-off* is interesting:
 - either deep and long recession now and no recession in the future to fight against inflation
 - or light recession now but a deep recession in the future in order to fight against inflation

Macroeconomics and J.M.Keynes

- The model for short run fluctuations outlined here is to a large extent a by-product of *Great Depression*
- Economist and policymakers were puzzled at the depth and persistence of depression in 1930s
- *John Maynard Keynes* was an economist at Cambridge University (UK) at the time
- In 1936 he published a book called “*The General Theory of Employment, Interest and Money*”
- Keynes’s primary message was that recessions and depressions can occur because of inadequate aggregate demand for goods and services
- Therefore the government must intervene to inject additional demand in the economy

Conclusion

- Short run economic fluctuations occur around long-run trends but are irregular and unpredictable
- During a recession, real GDP, spending and production falls and unemployment rises
- In the AD-AS model, the output of goods and services and the overall price level adjust to balance aggregate demand with aggregate supply
- The aggregate demand curve slopes downward
- Due to wealth, interest rate and exchange rate effects on spending
- The long-run aggregate supply curve is vertical because it depends not on prices but the production function

Conclusion

- The short-run aggregate supply curve slopes up
- Due to misperceptions, sticky-wage or sticky-price theories
- A fall in aggregate demand may be the cause of a recession
- An adverse change in aggregate supply may also be the cause of a recession
- Policy response to recession can be passive or accomodating
- Policy response will determine both the length of the recession and the end-level of prices (inflation)
- There is trade-off between inflation and fighting with accomodating policy against recession

THE INFLUENCE OF MONETARY AND FISCAL POLICY ON AGGREGATE DEMAND

Chapter 34

Importance of economic policy

- *Economic policy* refers to the actions of the government that have a direct impact on the macro-economic equilibrium of the economy
- *Fiscal policy*: changes in taxes and/or government spending, affecting the budget balance
- Fiscal policy involves the government proper: Cabinet, Ministers, Parliament, etc.
- *Monetary policy*: changes in the quantity of money and/or short-term interest rates
- The CB decides and implements monetary policy
- Our task is to understand how different monetary policy and fiscal policy alternatives affect aggregate demand, aggregate supply, price level, etc

Aggregate demand

- The aggregate-demand curve shows the total quantities of goods and services demanded in the economy for any price level
- The aggregate-demand curve slopes downward for three reasons
 - *The wealth effect*: lower prices mean higher liquid wealth, thus more spending
 - *The interest-rate effect*: lower prices mean lower interest rates, thus more spending
 - *The exchange-rate effect*: lower prices and interest rates mean lower exchange rate, thus more spending on domestic products
- The importance of each depends on many factors

Monetary policy and aggregate demand

- We start by looking at the effects of monetary policy on aggregate demand
- For this purpose, we must first understand the forces that affect the interest rate in the short run
- The *Theory of Liquidity Preference* explains the close relation between money supply and the interest rate in the short run
- In the long run, the real interest rate was determined in the loanable funds market
- In the short run monetary policy has a direct effect on the interest rate, and therefore the exchange rate
- The theory of liquidity preference was first developed by *Keynes*

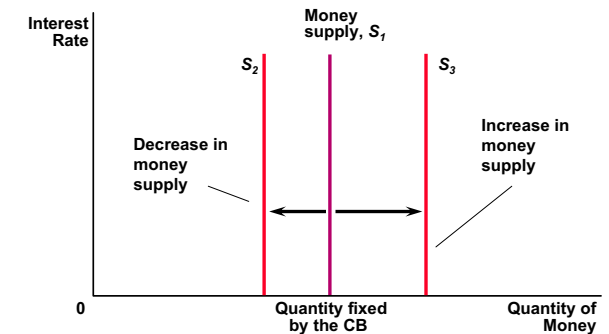
Interest rate and the money market

- Remember: the *nominal interest rate* is observed in the financial markets and the real interest rate is calculated after taking into account inflation
- In this analysis, we will assume that the expected rate of inflation is constant
- In other words, changes in the nominal interest rate imply similar changes in the real interest rate
- According to the theory of liquidity preference, the *short run interest rate* (both nominal and real) adjusts the supply and demand for money
- Therefore, the interest rate has two functions:
 - Loanable funds*: for saving and investment
 - Money market*: for liquidity demand and supply

The supply of money

- The CB controls the supply of money through
 - Open-market operations* – OMOs (selling and buying T-Bills)
 - Changing the *reserve requirements*
 - Changing the *discount rate* (o/n rate in Turkey)
 - FX operations* (selling and buying FX)
- Because the money supply is *fixed by the CB*, the quantity of money available in the economy does not depend on the interest rate
- The money supply fixed by the CB is represented by a *vertical supply curve*
- An increase (decrease) in the quantity of money *shifts* the money supply to right (left)

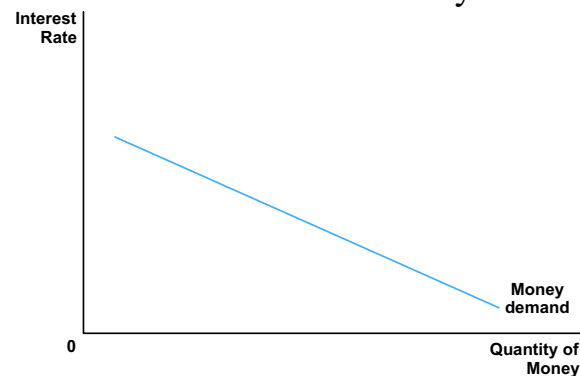
Money supply



The demand for money

- The *opportunity cost* of holding money is the interest that could be earned on interest-earning assets
- An *increase* in the interest rate raises the opportunity cost of holding money
- As a result, the quantity of money demanded is reduced
- A *decrease* in the interest rate lowers the opportunity cost of holding money
- As a result, the quantity of money demanded rises
- Why? Because money is *the most liquid asset* and being liquid reduces the risk of losses from changing interest rates

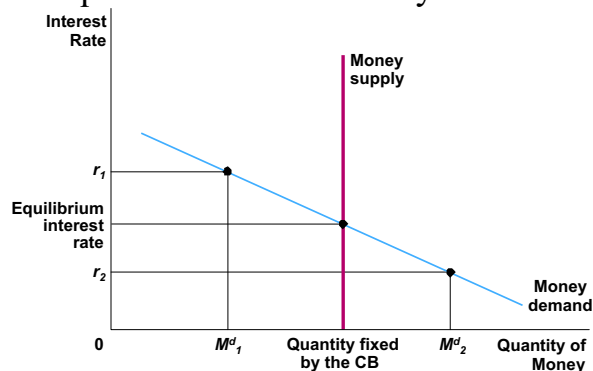
The Demand for Money



Money market equilibrium

- We have a vertical supply curve and a downward sloping demand curve
- Money market interest rate* is determined at the intersection of these two curves
- According to the *theory of liquidity preference*, the interest rate adjusts to balance the supply and demand for money
- There is one interest rate, called the *equilibrium interest rate*, at which the quantity of money demanded is equal to the quantity of money fixed by the CB
- At all other interest rates, there will be either excess demand or excess supply of money

Equilibrium in the Money Market



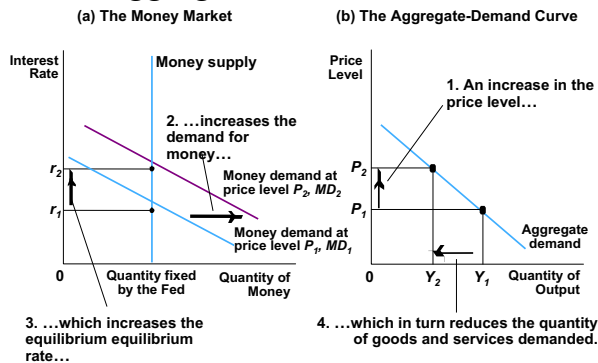
Interest rates in the short and long run

- We now have *two theories* of interest rates
- In the *long run* (Ch.26) the interest rate adjusts to balance the supply and demand for loanable funds (saving and investment)
- In the *short run* the interest rate adjusts to balance the supply and demand for money (liquidity)
- In the long run, *output is fixed* by real factors
- The interest rate adjusts saving and investment
- The price level adjusts money supply and demand
- In the short run the *price level is fixed*
- The interest rate adjusts money supply and demand
- Level of output adjusts saving and investment

Slope of the AD curve and the money market

- Let us now see the relation between the money market and *the slope* of the aggregate demand curve
- What happens when we have a *higher price level*?
- Higher price level increases the demand for money
- This leads to *higher interest rate* in the money market
- Higher interest rate reduces investment spending
- Therefore aggregate demand for goods and services is lower
- Confirming the *downward slope* of the aggregate demand curve

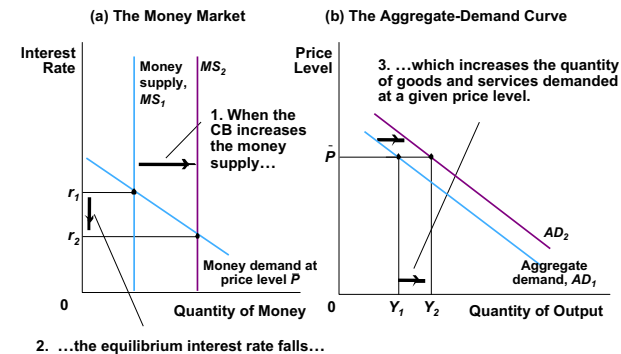
The Downward Slope of the Aggregate Demand Curve



Changes in the money supply

- Monetary policy affects aggregate demand
- *Loose monetary policy* corresponds to increases in the money supply
- An increase in the money supply shifts the money supply curve to the *right*
- With liquidity demand constant, the interest rate falls
- Falling interest rate increases investment spending and thus the quantity of goods and services demanded
- The aggregate demand curve *shifts to right*
- *Tight monetary policy* corresponds to decrease in the money supply (AD shifts left)

Changes in the Money Supply



Interest rate targets and money supply

- The CB may not be able to *control directly* the quantity of money in the economy
- In this case targeting the money supply as a tool of monetary policy will not be appropriate
- An alternative method is to *target an interest rate* and let the money market work out the details of supply and demand
- In this case, the causality is *reversed*: it moves from the discount rate fixed by the CB to liquidity demand and therefore to the quantity of money
- Many CBs now consider interest rate targets as *more efficient instruments* of monetary policy
- The theory is not affected by this

Monetary policy and the stock market

- CBs and stock exchanges closely watch one another
- Interest rate decisions of the central banks carry valuable information for financial markets
- About the future behaviour of key macroeconomics indicators and prices
- Central banks in turn worry about the evolution of *asset prices* such as real estate and stocks
- Booming asset prices increase society's wealth
- Leading to more consumption and investment spending and higher aggregate demand
- When the CB increases interest rates, assets prices usually fall, in expectation of lower future aggregate demand and therefore profits

Fiscal policy and aggregate demand

- *Fiscal policy* refers to the choice of government regarding the overall level of government purchases or taxes
- *The budget balance* summarises fiscal policy
- *Loose fiscal policy* means higher spending or less taxes by the government (bigger budget deficit)
- *Tight fiscal policy* means less spending or more taxes by the government (smaller budget deficit)
- Fiscal policy influences saving, investment and growth of output in the long run
- In the short run, fiscal policy primarily affects the aggregate demand
- It makes the aggregate demand curve shift

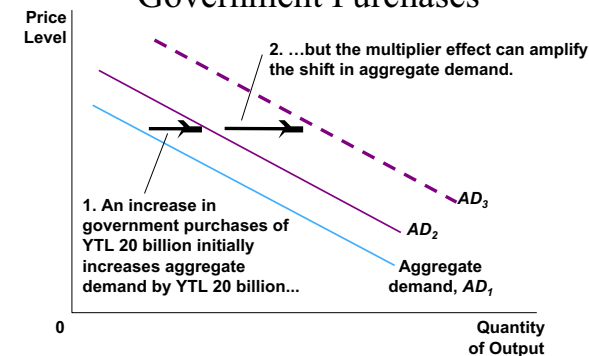
Changes in the budget

- Government decisions to spend and to tax influence the economy because of the *size of government* in relation to the economy
- It can make deliberate use of spending and taxes to *manipulate* the economy towards achieving a predetermined outcome
- Its control over the economy is both direct through government purchases and indirect through the effects of taxes on consumption and investment
- There are two macroeconomic effects of the budget balance
 - The *multiplier effect*
 - The *crowding-out effect*

The multiplier effect

- Government purchases are said to have a *multiplier effect* on aggregate demand
- Each TL spent by the government can raise the aggregate demand for goods and services by *more than one TL*
- The total impact of an increase in government spending can be much larger than itself
- Remember the circular flow: *everybody's income is someone else's spending*
- When government spends more, some people earn more and therefore spend more, which become income to other people who spend more, etc.
- This relation is summarised in *the multiplier*

The Multiplier Effect of Government Purchases



The multiplier

- The *value of the multiplier* depends on how much people consume and save from their income
- *Marginal Propensity to Consume (MPC)*: additional consumption from one unit of income
- *Marginal Propensity to Save (MPS)*: additional saving from one unit of income
- Obviously, the two propensities add up to one
 $MPC + MPS = 1$
- The formula for the multiplier is:
 $Multiplier = 1 / (1 - MPC) = 1 / MPS$
- Example: if $MPC = 0.75$ (75 %), then $MPS = 0.25$ (25 %) and the multiplier is $M = 4$
- 100 YTL public spending creates 400 YTL demand

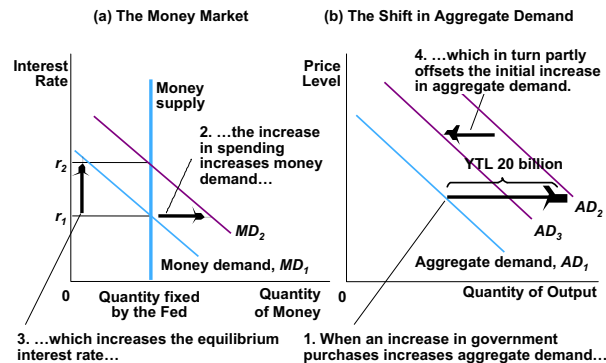
How the multiplier works

Change in government purchases	=	YTL 20 million
First change in consumption	=	YTL 15 milyon
Second change in consumption	=	YTL 11.25 million
Third change in consumption	=	YTL 8.4376 million
Fourth change in consumption	=	YTL 6.33 million
...		
...		
...		
<hr/>		
Total change in consumption	=	YTL 80 million
$(1 + MPC + MPC^2 + MPC^3 + \dots) \times YTL 20 \text{ million}$		

The crowding-out effect

- But there is *another constraint* on the ability of fiscal policy to increase aggregate demand
- Which *limits* the effectiveness of the multiplier
- An increase in government spending causes the *interest rate to rise*
- Higher interest rate reduces investment spending
- Part of the increase in demand is offset by lower investment spending
- In this case, we can talk about government spending *crowding-out* private investment in the economy
- *Attention*: for crowding-out to happen, interest rate must rise as a result of loose fiscal policy
- Otherwise there is no crowding-out of investment

The Crowding-Out Effect



Fiscal policy: net impact

- The *final impact* of fiscal policy will depend on the relative strength of the multiplier and crowding-out
- If loose fiscal policy represented by a larger budget deficit causes *substantially higher* interest rates, then domestic demand will not increase
- In turn, if the fiscal stimulus to the economy comes at a time when interest rates remain *very low*, it will shift the aggregate demand as targeted
- In case of *price volatility* (inflation), large public debt or lack of credibility by the government fiscal stimulus may actually back-fire and *reduce* aggregate demand by eroding further *confidence* of the markets

Changes in taxes

- Tax cuts by the government increase the *take-home pay* of the households
- Households save some of this additional income and spend some of it on consumer goods and services
- The shift in aggregate demand resulting from a tax change depends on the value of the multiplier and the strength of the crowding-out effect as in government spending
- However, households may also decide to save a large part of the additional income if they believe it is *temporary*
- In that case its impact on aggregate demand will be much weaker

Using policy for stability

- Economists disagree about how active government should be attempting to *stabilise* the economy
- Usually, those on the “*left*”, such as the Democrats in the US and social-democrats in Europe prefer *active stabilisation policy*
- Those on the “*right*”, such as the Republicans in the US and conservatives in Europe prefer to let the *markets do their job*
- In Turkey this division is not so neat
- Both the “*right*” and “*left*” political parties in the past have been inclined to implement loose fiscal and monetary policies
- Which is the main cause of *high inflation* in Turkey

Case for active stabilisation policy

- Many policymakers believe it is necessary to use monetary and fiscal policy to tame an *inherently unstable* private sector
- Over time, the attitudes of households and firms cause large shifts in aggregate demand
- This is especially true of *investment spending* which can show big fluctuations
- If there is no public response to these with timely interventions through monetary and fiscal policy, the economy will experience *undesirable and unnecessary* fluctuations in output and employment
- Therefore it is the *job and duty* of the government to be active in macroeconomic policy

Keynesian policy in the US

- For two decades after 1960 *Keynesian economics* which supports active stabilisation policy became dominant in the US administration
- Several presidents, mainly from Democratic Party, collaborated very closely with famous Keynesian economists in *designing* economic policy
- *Budget deficits* were tolerated with the expectation of lower unemployment
- Monetary policy *accommodated* budget deficits
- Small but steady rise in inflation was considered a *fair price* to pay compared to gains in output and employment
- All this has changed after 1980s

Case against active stabilisation policy

- Many economists argue that active use of monetary and fiscal policy by government actually *destabilises* the economy
- One major problem is *lags*
- Monetary and fiscal policy works with *long lags*
- By the time the effects of monetary or fiscal policy are felt, the situation could be changed, even reversed
- Which means that policy interventions may aggravate the fluctuations in the economy
- Therefore the economy should be left to deal with the short run fluctuations *on its own*
- The market *works better* than government policy

Automatic stabilisers

- *Automatic stabilisers* are changes in fiscal policy that stimulate aggregate demand when the economy goes into recession without policymakers having to take any deliberate action
- This is due to the structure of the budget revenues and spending in developed economies
- Typically, *unemployment benefits* increase during a recession while tax receipts fall, increasing the budget deficit (loose fiscal stance)
- Unemployment benefits decrease during a boom while tax receipts rise, reducing the deficit or even moving the budget into surplus (tight fiscal stance)
- Thus the budget *automatically* stabilise fluctuations

Central bank independence

- A key economic policy issue is the *independence* of the central bank from the government
- In every country, the central bank is a publicly owned institution, responsible to the *government*
- Yet economic theory favours *minimum* direct government intervention in the conduct of monetary policy by the central bank
- Politicians worry more about the short run, such as the next elections and are ready to trade some inflation for more employment
- In the long run higher inflation results in lower average growth rate and therefore less employment
- An independent CB fights inflation more effectively

Conclusion

- Short-run effects of monetary and fiscal policy can change the aggregate demand for goods and services and therefore alter the economy's production and employment
- The theory of liquidity preference links the supply of money with the interest rate
- In the short-run the interest rate is determined in the money market by the supply and demand for money
- Changes in the money supply influence the interest rate and therefore aggregate demand
- When the CB changes the growth rate of money supply it must take into account its long-run effect on inflation and short-run effect on output

Conclusion

- Government decisions on taxes and on public spending have a direct impact on aggregate demand
- Fiscal policy refers to changes in the budget balance (deficit or surplus)
- The multiplier explains how additional spending (or less taxes) by the government creates more demand than itself
- Budget deficit may crowd-out private investment if interest rates rise as a result of the deficit
- The net effect of fiscal policy on aggregate demand depends on the value of multiplier and crowding-out
- Fiscal policy has long-run effects on saving and growth and short-run effects on output

THE SHORT-RUN TRADEOFF BETWEEN INFLATION AND UNEMPLOYMENT

Chapter 35

Policy dilemmas

- In Chapter 34 we had a first look at the *dilemmas* facing policymakers in the short run
- *Accommodating* monetary policy after an adverse supply shock (increase in oil prices) means a milder recession and lower unemployment
- But also *higher inflation*
- One of the principles we studied in Chapter 1 described this situation
- “*Society faces a short-run tradeoff between inflation and unemployment*”
- Lower unemployment and higher growth rate can only be obtained in the short-run by accepting the acceleration in inflation

The long-run

- *In the long-run* the level of unemployment depends on several factors
 - Capital accumulation, itself a function of saving and investment
 - Features of the labour market such as minimum-wage laws, the market power of unions, the role of efficiency wages and the effectiveness of job search
- These determine the *natural rate of unemployment* in the economy
- In the long-run the rate of inflation depends on the growth rate of the *quantity of money* in the economy, which is directly controlled by the CB

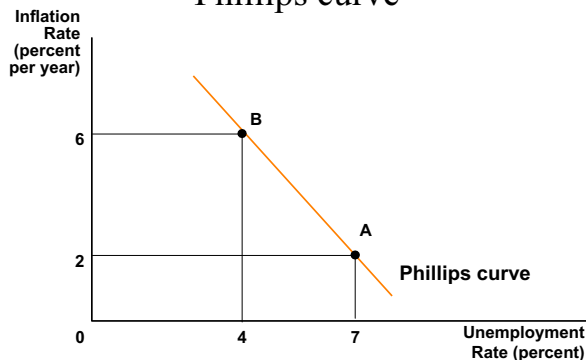
The Phillips curve

- The short-run tradeoff between unemployment and inflation is illustrated by the *Phillips curve*
- If policymakers expand aggregate demand, they can lower unemployment but only *at the cost of* higher inflation
- If policymakers contract aggregate demand, they can lower inflation but *at the cost of* temporarily higher unemployment
- The Phillips curve shows *the combinations of unemployment and inflation* that arise as shifts in the aggregate demand curve move the economy along the short-run aggregate supply curve
- This is a very useful relation for economic policy

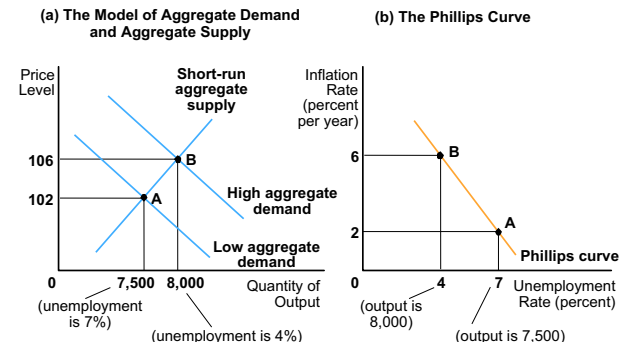
Unemployment and growth

- We must remember the one-to-one relation between the *growth rate of GNP* and the level of unemployment
- Greater aggregate demand for goods and services imply a larger output for the economy
- Which means higher growth rate of GNP but also higher overall price level
- High levels of growth of GNP corresponds to low levels of unemployment as firms increase production to meet demand
- Therefore, to high levels of growth and inflation will correspond low levels of unemployment and the opposite for low levels of growth

Phillips curve



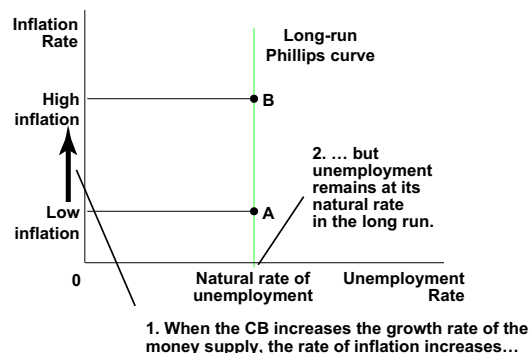
The aggregate demand and supply model and the Phillips curve



The long-run Phillips curve

- At first, the *Phillips curve* seemed to offer policymakers a menu of possible inflation and unemployment outcomes
- Governments believed they could increase the growth rate of the GNP by loose monetary or fiscal policy and thus reduce unemployment even below its natural rate if they accepted a *small rise* in inflation
- In the 1960s, *Friedman and Phelps* concluded that inflation and unemployment are unrelated in the long-run
- Therefore, *the long-run Phillips curve* is vertical at the natural rate of unemployment

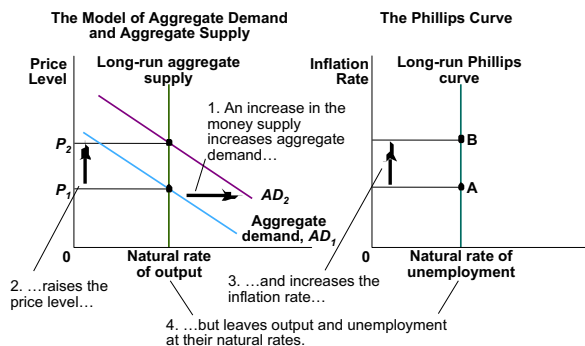
The long-run Phillips curve



The natural rate hypothesis

- The view that unemployment eventually returns to its natural rate regardless of the rate of inflation is called *the natural-rate hypothesis*
- This is a restatement of the “*classical dichotomy*” and “*neutrality of money*” that we learned when we studied money in the long-run
- Monetary policy could be effective in reducing unemployment and increasing growth in the short-run but has *no positive effect* on either in the long-run
- Historical observations from different economies with different unemployment levels *support* the natural-rate hypothesis

Aggregate demand and supply and the long-run Phillips curve



Introducing expectations

- What explains *the difference* between a downward sloping short-run Phillips curve and the vertical long-run Phillips curve?
- Data from the US and the UK for the period before 1960s clearly exhibited the type of relation foreseen by the short-run Phillips curve
- Yet *Friedman and Phelps* had very strong theoretical arguments for the vertical long-run Phillips curve
- To make the two curves compatible, Friedman and Phelps introduced *inflation expectations* into the analysis
- *Expectations* play a very important role in macroeconomics

More on expectations

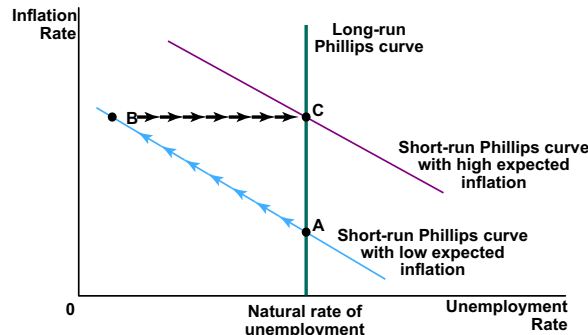
- The short-run Phillips curve corresponds to a *constant level* of inflation expectations
- For example, when the CB loosens monetary policy to reduce unemployment, *expected inflation* does not change immediately
- Which allows monetary policy to create additional demand and as a result *unexpected inflation*
- When economic actors realise that inflation is now higher, they begin to *anticipate* higher inflation
- Once higher inflation is *anticipated (expected)*, the only way to reduce unemployment below the natural rate is for actual inflation to be above the anticipated rate

Shifts in the short-run Phillips curve

- The short-run Phillips curve is effective through the difference between *expected and actual inflation*
- A general formula can be written as

$$\text{Unemployment (\%)} = \text{Natural-rate (\%)} - \beta (\text{Actual inflation} - \text{Expected inflation})$$
- In other words, if actual inflation is above expected inflation, then unemployment fall below natural rate
- In the long-run expected inflation *adjusts* to changes in actual inflation
- Changes in expected inflation corresponds to *shifts* in the short-run Phillips curve
- Higher expected inflation shifts it to *right*
- Lower expected inflation shifts it to *left*

Expected inflation shifts the short-run Phillips curve



US experience with the Phillips curve

- The systematic use of Keynesian expansionary policies in the US ended up by changing inflation expectations and thus *the stable Phillips curve* broke down in the early 1970s
- During the 1970s and 1980s, US economy experienced high inflation and high unemployment simultaneously (*stagflation*)
- This was a period of intensive debate between *Keynesians* who believed in active policy and the supporters of Friedman (called *monetarists*) who advocated restraint in monetary and fiscal policy
- The break-down of the *stable Phillips curve* had far reaching consequences for macroeconomics

Phillips curve in the US (1960s)

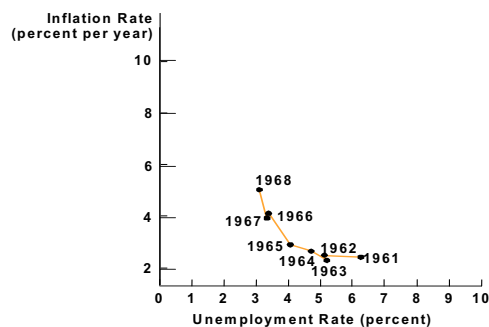
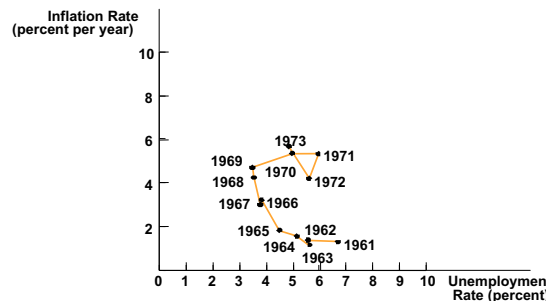


Figure 21-6

US Phillips curve breaks down (1970s)



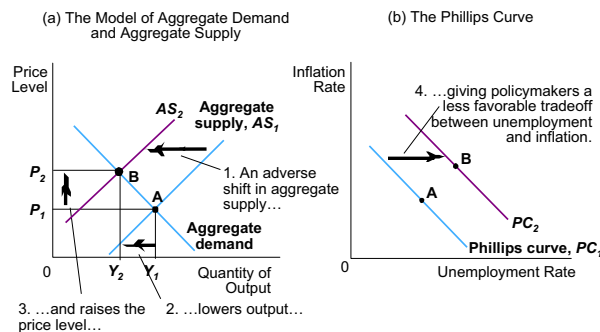
Supply shocks and the Phillips curve

- Historical events have shown *beyond doubt* that the short-run Phillips curve can shift due to changes in inflation expectations
- The short-run Phillips curve also shifts because of *shocks* to aggregate supply
- Major *adverse changes* that affect aggregate supply can worsen the short-run tradeoff between unemployment and inflation
- By causing the curve to shift to *right*
- An adverse supply shock gives policymakers a less favourable tradeoff between inflation and unemployment
- And take us back to the *policy dilemma*

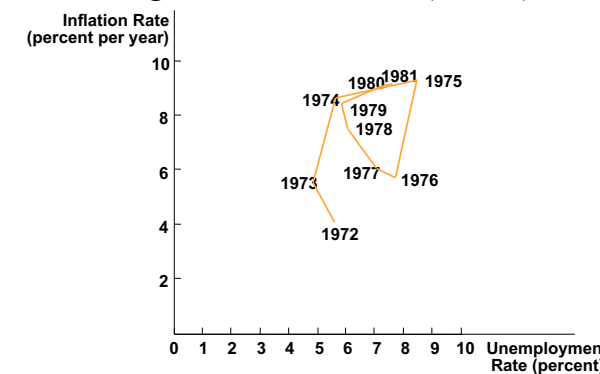
Policy dilemma of oil price hikes

- In the 1970s, policymakers everywhere in the world faced *hard choices* when OPEC cut output and raised the price of petroleum several fold
- They could either *fight unemployment* by expanding aggregate demand and face the acceleration of inflation
- Or *fight inflation* by contracting aggregate demand and endure even higher unemployment
- The first choice aggravated the shift in the short-run Phillips curve, because both costs and inflation expectations now contributed to shifts in the curve
- The second choice was *politically unattractive* to many governments

Policy dilemma caused by a supply shock



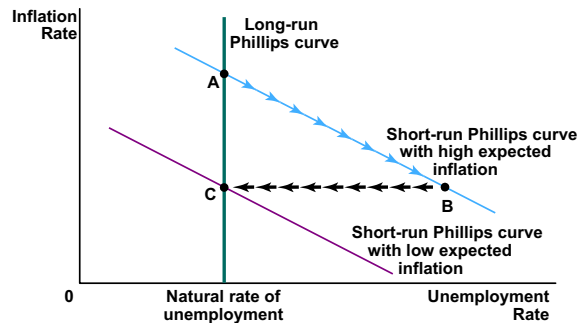
Stagflation in the US (1970s)



The cost of reducing inflation

- Once inflation reaches high levels (*double-digit*), reducing it to normal levels become a major macroeconomic policy issue
- Disinflation* is the fall in inflation (not in prices: that is *deflation*)
- Disinflation requires a period of *tight* fiscal and monetary policies to break the cost-price spiral and inflationary expectations
- During which unemployment remains high and the growth rate of GNP is low, even negative
- Because the equilibrium point moves downward on the short-run Phillips curve
- In the long run the curve shifts to *left*

Disinflation and the Phillips curve



The sacrifice ratio

- Output lost during disinflation is also called the *sacrifice ratio*
- The sacrifice ratio is the number of percentage points of annual output that is *lost* in the process of reducing inflation by one percentage point
- The sacrifice ratio for the US economy was estimated during the 1980s
- It was *five*
- To reduce inflation from about 10 % in 1979-81 to 4 % would have required an estimated sacrifice of 30 % of annual output
- Fighting against inflation can be *very costly* for the society

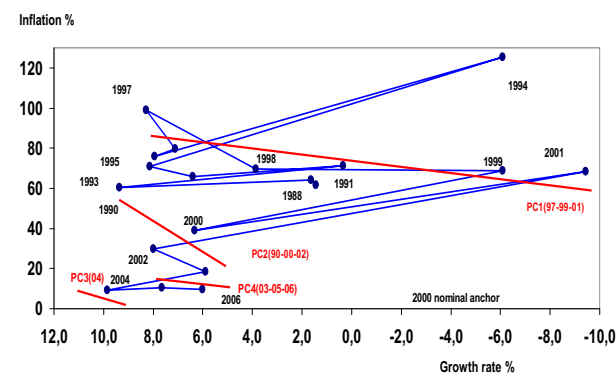
Rational expectations

- The theory of rational expectations* became very fashionable in macroeconomics during 1980s
- It suggested that the sacrifice ratio of disinflation could be *much smaller* than estimated
- The theory of rational expectations assumes that people optimally use *all the information* they have when forecasting about the future, including information about government policies
- Remember: expected inflation explains the different short-run and long-run Phillips curves
- If expectations *adjust quickly* to disinflation, then the short-run Phillips curve shifts quickly and the sacrifice ratio is lower

Costless disinflation

- The possibility of altering inflation expectations opens the road for *disinflation without cost*
- If people can be *convinced* that inflation will fall to a target set by policymakers there is no need for a contraction in output
- The short-run Phillips curve *shifts to left* such that the economy has both higher growth rate (lower unemployment) and lower inflation
- Using *the exchange rate as a nominal anchor* by fixing its future value is one of the methods of reducing inflation expectations
- Turkey tried this during 2000 and the economy boomed while inflation went down substantially

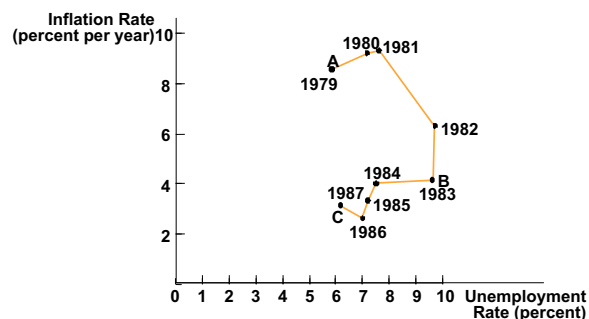
Turkey: Phillips curves 1998-2006



Disinflation in the US

- In early 1980s CPI inflation reached 10 % and efforts to disinflate the US economy intensified
- In 1981 Federal Reserve Board (Fed) *Chairman Volcker* tightened substantially monetary policy and inflation fell from 10 % in 1981 to 4 % in 1984
- The sacrifice ratio was indeed high: unemployment rate stayed at 9 % for the period
- Shifts to the left* in the short-run Phillips curve during 1984-86 led to lower inflation and unemployment
- Inflation in the US has been on a downward trend since then despite record low unemployment rates during the long expansion of 1990s

Disinflation in the US (1980s)



Virtuous circle of low inflation

- Some interesting characteristics of low inflation are worth highlighting
- Once inflation remains very low for a long period of time, economic actors begin to believe that it will remain low *also in the future*
- Firms become *very sensitive* to any increases in their costs, such as wages or other inputs
- Because they believe they will not be able to *pass on* to the consumer the additional costs
- Thus they keep inflation low, setting in motion a "*virtuous circle*"
- High inflation like Turkey had for the last 30 years was a very damaging "*vicious circle*"

Examples of “virtuous circle”

- US economy experienced rapid growth of output, low levels of unemployment and very low inflation during the 1990s
- Because of a *favourable shifts* in the Phillips curve
- Most analysts believe the determination of Fed *Chairman Greenspan* to fight inflation was an important factor in improved expectations
- Turkey experienced record breaking growth rates with rapidly falling inflation between 2002-2005
- The favourable shifts in the Phillips curves can also be explained by better economic policies
- *Budget discipline and tight fiscal policy* explains a larger part of improvement in the case of Turkey

Case for inflation targeting

- Tools and methods of monetary policy remain a key issue for discussion in macroeconomics
- During the last two decades many countries moved to a new approach to monetary policy called “*inflation targeting*” first invented New Zealand
- The government sets a specific *target* for inflation: it can be point (3 % p.a.) or range (2.5 to 3.5 % p.a.)
- The central bank is responsible to achieve this target
- CB is free to use monetary policy instruments as it wishes provided these are *transparent*
- *Accountability* is an important advantage of IT
- Inflation targeting is implemented in Turkey since January 2006

Conclusion

- The understanding by economists of the tradeoffs between inflation and unemployment has changed dramatically during the last forty years
- Certain principles have developed that today command consensus among economists
- The Phillips curve describes the relation between inflation and unemployment and the dilemma before the policymakers
- In the long run, there is no relation between unemployment and inflation (classical dichotomy)
- The long-run Phillips curve is vertical
- In the short run, low level of unemployment corresponds to high level of inflation and *vice versa*
- The short-run Phillips curve is downward sloping

Conclusion

- The Phillips curve is compatible with and can be derived from the aggregate demand and supply model
- Supply shocks and changes in inflation expectations cause shifts in the short-run Phillips curve
- When the Phillips curve shifts right, a higher level of inflation will correspond to the same level of unemployment
- Disinflation is the fight against inflation
- The sacrifice ratio is the value of output lost during disinflation
- According to the rational expectations theory, zero sacrifice ratio is possible with large positive shifts in expectations

PART XIII: FINAL THOUGHTS

Five Debates over Macroeconomic Policy

Chapter 36

What did we learn until now?

- The second semester of the introduction to economics course deals with macroeconomics
- We divided macroeconomics into five parts
- *Part XIII* introduced the circular flow of income and defined Gross Domestic Product and Price Indexes
- *Part IX* looked at the real economy in the long run: growth, saving-investment, finance and employment
- *Part X* dealt with money and inflation in the long run
- *Part XI* introduced goods & services and financial flows with the outside world (open economy)
- *Part XII* analysed short run fluctuations in output, unemployment and prices

Macroeconomic debates in the US

- Chapter 36 draws on what we learned before but with special emphasis on *policy issues*
- It reviews current policy debates in the US
- Macroeconomic theory has developed mainly in the US, focusing on different macroeconomic problems faced by the US economy
- Many theories are directly linked to divisions among economists on *policy options* in the US and other industrial countries
- Some of these debates may not seem relevant for Turkish students because of the more pressing problems facing Turkey, such as inflation and crises
- We look into these in the next chapter

Five major debates on policy

- *Debate One*: Should policymakers try to stabilise the economy with monetary and fiscal policy?
- “Active vs. Passive” policy discussion once again
- *Debate Two*: Should monetary policy be made by rules or by discretion?
- Can we trust policymakers?
- *Debate Three*: Should the CB aim for zero inflation?
- Is there a “good” level of inflation?
- *Debate Four*: Should the gov’t balance its budget?
- Evaluating fiscal policy and public debt
- *Debate Five*: Should the tax laws be reformed to encourage saving?
- Taxes, efficiency and the distribution of income

Pro: policymakers should try to stabilise the economy

- “*Left*” leaning economists believe that a market economy is *inherently unstable* and unless corrected it will have wide and unnecessary fluctuations
- Policy can manage *aggregate demand* in order to offset the inherent macro instability of the economy and reduce the severity of economic fluctuations
- There is no reason why society should suffer *the pain* from the violent booms and busts of recurrent business cycles
- *Active countercyclical* monetary and fiscal policy will curb the potential excesses of the market economy, thus bringing much needed stability

Con: policymakers should not try to stabilise the economy

- “*Right*” leaning economists believe that a market economy is *inherently stable* and it is government intervention which makes it unstable
- Monetary policy works with long and unpredictable *lags* between the need to act and the time it takes for these policies to produce results
- Monetary policy lags often reach six months
- Fiscal policy has long lags in the *design phase* because it involves the political process: Parliament, Cabinet, etc.
- All too often *policy initiatives* exacerbate rather than mitigate the magnitude of economic fluctuation

Pro: monetary policy should be made by rule

- “*Right*” leaning economists defend “*rules based*” monetary policy
- “*Rules based policy*” implies that the CB announces a set of *binding rules* and implements them irrespective of prevailing economic conditions
- It leaves very little freedom of action to the CB
- This prevents policy mistakes causing inflation
- CB is prevented from using policy to support the government in elections: *political business cycle*
- There is no worry about a discrepancy between what the CB says and what it does: *time inconsistency problem*

Con: monetary policy should be discretionary

- “*Left*” leaning economists defend *discretionary* monetary policy
- *Discretionary monetary policy* allows the CB to choose among tools and policies available those best suited to the circumstances
- It gives *flexibility* to the CB, especially when faced with unprecedented and surprise events
- In the rapidly changing world of the global economy, policymakers need flexibility
- The alleged problems with discretion such as political business cycle or time inconsistency are largely *hypothetical*

Pro: CB should aim zero inflation

- “*Right*” leaning economists contend that even very low inflation (1 % p.a.) is a *cost* on society
- We studied the *costs of inflation*: shoeleather costs, menu costs, increased variability of relative prices, tax liabilities, confusion and inconvenience and arbitrary redistribution of wealth
- Reducing inflation to zero has temporary costs (during *disinflation*) but also *permanent benefits* once it is achieved
- Money can fulfill its “*store of value*” function only in case of zero inflation
- Economically weak sections of society, such as the elderly and the poor benefit *more* from zero inflation

Con: CB should not aim zero inflation

- “*Left*” leaning economists contend that zero inflation is probably unattainable and to get there involves *output and unemployment costs* that are far too high compared with its benefits
- Policymakers can reduce many of the costs of relatively low level of inflation (1 or 2 % p.a.) without actually reducing inflation to zero
- *Inflation indexed T-bills* and inflation-adjustment in tax rates are some of the tools that is now being used in many countries
- A little inflation may improve the working of the *labour markets* during structural change such as those imposed by globalisation

Pro: government should balance its budget

- *Budget deficits* have always been the subject of heated public debates
- *Public debt* is the sum of past budget deficits
- “*Right*” leaning economists demand government budgets to be balanced: neither deficit nor surplus
- Budget deficits reduce *national saving* and therefore investment: *crowding out*
- Budget deficit corresponds to a transfer of resources from *future generations* to the current one
- Exceptional circumstances such as *wars* may justify budget deficits because the cost of war must also be shared by future generations

Con: government should not balance its budget

- “*Left*” leaning economists dispute the demand for a balanced budget irrespective of conditions
- Per capita debt must be compared with the life-time earnings of a citizen, not annual GDP
- Future generation’s inheritance is not only the public debt; but also the infrastructure built and the *wealth accumulated* by the previous generation
- *Deficits* caused by public investment in education may actually improve generational distribution of income by increasing future productivity
- Ratio of public debt to GNP may remain constant or even fall despite budget deficits: debt dynamics

Pro: tax laws should be reformed to encourage saving

- “*Right*” leaning economists support changes in the tax laws so that *capital income* is less heavily taxed
- Saving is the main source of investment, and therefore of higher productivity, of more employment and of higher living standards
- High taxes on capital income is a *disincentive* to save which reduces welfare of the society
- A growth-friendly approach is to *tax consumption*
- With a consumption tax households pay taxes on what they spend, not on what they earn
- Income that is saved is exempt from taxation until the saving is later withdrawn and spent on consumption

Con: tax laws should not be reformed to encourage saving

- “*Left*” leaning economists are against changes in the tax laws to encourage savings
- Such changes to stimulate saving would primarily benefit the *wealthy*
- High income households *save more* as a proportion of income than low income households
- Consumption tax is *regressive*; the poor pay higher taxes than the rich
- A more equitable way to stimulate saving is to generate *budget surpluses* and use them to pay back debt
- That way national saving is increased without making society less egalitarian

Globalisation, populism and crisis: macroeconomic issues for Turkey

Week 14

Differences among countries

- Macroeconomic theory provides us with the *general characteristics* of a modern market economy
- But, important *structural differences* exist among countries from the macroeconomic viewpoint
- A large portion of these differences are *quantitative*: per capita GNP is high for developed economies and low for developing nations
- Yet others are due to *qualitative differences* in political, legal and social institutions
- Such as traditions of democracy, property rights, law enforcement, corruption, etc
- Finally, macroeconomic performance and characteristics also vary from country to country.

What we learned about Turkey

- We encountered *comparative data* for the Turkish economy in the previous chapters
 - GDP, GNP, per capita GNP and economic growth
 - CPI, WPI and the GNP deflator
 - Population and structure of employment
 - Monetary aggregates, CB balance sheet and the history of inflation
 - Trade, Balance of Payments and other aspects of the open economy
- Based on what we know of macroeconomic theory and available data, we will now look at the *policy issues* relevant for the recent past of the Turkish economy

Macroeconomics for Turkey

- In depth analysis of the causes of Turkey's *under-development* is not the duty of macroeconomics
- *Development economics* deal with the long term trends in economic growth and social development
- It also covers the qualitative and institutional aspects of economic development
- Macroeconomics is about
 - Causes and consequences of *inflation*
 - *Volatility* in output, prices, interest rate, etc.
 - *Economic crises*
 - *Programs and policies* that aim to reduce volatility and increase economic stability

Plan of the lecture

- We start with the *international environment* for macroeconomic policy
 - *International institutions* such as the IMF and the World Bank
 - The meaning and implications of *globalisation* for macroeconomic policy
 - Fixed and floating *exchange rate regimes*
- Then we look at some of the major issues
 - *Populism* and populist cycles
 - FX and financial *crises*
 - *Banking sector* troubles
 - *Stabilisation* programs
 - *Inflation* and its costs

Bretton Woods Agreement

- A conference was held in the small town of *Bretton Woods* in New Hampshire (USA) in 1944
- It established the institutional framework of the international economy for the last half century
- Two *conflicting views* were debated: one from J.M.Keynes, the other from the American team
- Americans won the argument
- The *World Bank Group* and the *International Monetary Fund*, both based in Washington D.C. are the results of the Bretton Woods agreement
- They are also jointly called *International Financial Institutions* (IFI)
- They constitute the backbone of world economy

The World Bank

- *The World Bank* (WB) has 183 member countries and a staff of 10.000 (8.000 in Washington DC)
- It was established with the objective to support countries in their growth effort by acting like a *development bank*
- It played an important role in the reconstruction of Europe after WW2 along with the Marshall plan
- *Türkiye Sanayi Kalkınma Bankası*, the first Turkish development bank, was established with the support from the World Bank
- In the last decades the World Bank increasingly focused on *social aspects* of development, such as education, health, poverty, good governance

International Monetary Fund

- *International Monetary Fund* (IMF) has 183 member countries and a staff of 2.500
- It aims at helping member countries with payment difficulties by extending short-term *FX loans*
- To prevent a repetition of the 1930s when the breakdown of the *international payments system* had aggravated the depression in the world economy
- The world economy has grown without international liquidity problems in the 1950s and 1960s
- Since 1970s very few industrial economies demanded support from the IMF
- During the last three decades IMF's focus has shifted to *developing countries*

Standby arrangements

- IMF came into existence in 1946
- The first IMF loan went to *France* in 1947
- *Standby Arrangements* which constitute the basic framework for IMF support in periods of difficulties was first standardised in 1952
- As its name implies, through this arrangement between the IMF and a member country, IMF announces its readiness to *stand by* this country
- It works through a *Letter of Intend* in which the government gives the details of its program of action to solve the Balance of Payments problem
- LoI becomes effective when approved by the *Executive Board* of the IMF

Power in the IFIs

- Voting power in the IMF-WB depends on the *share of the capital* committed by the country
- US, Europe and Japan have the largest shares
- By tradition, the Chairman of the WB is appointed by the *US administration* while the Chairman of IMF is a *European*
- Both institutions employ *influential economists* at top management jobs
- *M. Bruno, A. Krueger* and *J. Stiglitz* (winner of the Nobel prize for 2001) served as chief economists at the WB in the past
- *S. Fischer, A. Krueger, K. Rogoff* were Deputy Managing Directors at the IMF

Turkey and the IMF

- Countries experiencing macroeconomic instability, such as high inflation, large public deficits and BoP problems sooner or later *ask support* from the IMF
- Turkey signed *17 Standby Arrangements* with the IMF during the last half century
- Those before 1999 always involved some form of Balance of Payments and FX liquidity difficulties
- They were typical *stabilisation programs*
- The last agreement in 1999, reformulated in 2001 and in 2002 are of a different kind
- They secure financial support from the IMF in order to reduce Turkey's high and persistent inflation
- They are *disinflation programs*

Critics of the IMF

- There are various critics of the IMF and its policies, some contradicting the others
- *Governments* (and opposition) in the developing countries complain about the fiscal discipline and politically unpopular public finance reforms required by the IMF as a condition for support
- *The Keynesian "left"* in the industrial countries criticise IMF for applying very strict monetarist policies to all cases without adequate respect for varying circumstances
- *The "right" in the US* blames the IMF for wasting the taxpayers' money on supporting irresponsible politicians in developing countries and causing serious "moral hazard"

International financial architecture

- In the last decade many developing countries, including *high growth economies* such as Korea, Thailand and Malaysia experienced financial crises
- The inability of IMF both *to forecast and to prevent* these crises intensified the volume of criticism
- The need for a major overhaul of the international financial system became a major issue
- But parties could not agree on what was to replace the IMF and how
- Strengthening the IMF to the point where it has the powers of a *World Central Bank* could be one solution in the long run
- But problems and difficulties remain in the short-run

Meaning of globalisation

- *Globalisation* became a very popular word during the last decade
- Its meaning varies much from one person to other
- For economists, globalisation means increased *integration and interdependence* of national economies, measured by international flows of:
 - Merchandise (trade: exports and imports)
 - Services (invisible trade)
 - Foreign direct investment (FDI)
 - Short and long term borrowing and finance
 - Stock-market portfolio investment
- The increase in these flows puts *serious constraints* on domestic economic policy

Capital mobility

- Before 1990s, international capital mobility was *the exception* not the rule among developing economies
- Constraints on the flows of finance *were lifted* by developing countries in late 1980s and early 1990s
- The process is called "*capital account liberalisation*" or "*currency convertibility*"
- Very strict controls over capital flows existed in Turkey until 1989 when the TL became *convertible*
- *Without* capital mobility, residents in a country are not allowed to buy and accumulate FX freely
- There are many economists in Turkey who believe that the convertible TL did *more harm than good* to the Turkish economy

Globalisation trilemma

- Convertibility of the TL (*capital account liberalisation*) imposes new constraints on economic policy
- *Globalisation trilemma* refers to these constraints
- Policy makers can control only two of the following policy instruments
 - Capital account liberalisation (*convertibility*)
 - Independent monetary policy (*interest rate*)
 - Exchange rates
- The third must be left to the *markets*
- Once the currency is convertible, CB loses control over *either* the interest rate or the exchange rate
- For CB to control both, capital controls must be reimposed (*no convertibility*)

Choice of policy instruments

- After convertibility, the government can either control the interest rate or the exchange rate, *but not both at the same time*
- Command over monetary policy implies letting the exchange rate fluctuate by the *forces of the market*
- Then monetary policy (*discretionary or rules-based*) can be used to fight against recessions
- Stable exchange rates can only be achieved by letting the interest rate fluctuate in the market
- Therefore monetary policy can no longer be used to stabilise economic fluctuations
- Rich countries prefer to control *the interest rate* and float their exchange rates

Example from Turkey

- During 1990s, Turkey targeted *stable exchange rate*
- High interest rates and output volatility are direct consequences of this choice
- What happened in Turkey during 2000 and 2001 confirm the trilemma
- In 2000, the exchange rate was *stable* because it was fixed by the CB with IMF support
- But the interest rate became *very volatile* in 2000 despite a growing economy and falling inflation
- After 2001 the exchange rate was *floated* and fluctuated wildly throughout the period
- But interest rates remained *relatively stable* despite the financial crisis, deep recession and recovery

Exchange rate regimes

- What to do about the exchange rate?
- Should we leave it to the market, to be determined by the forces of supply and demand?
- Should the government fix it through the CB?
- The exchange rate regime summarises this choice
- In “*fixed exchange rate regime*”, the CB agrees to buy and sell FX at the rate it announces
- It is also called “*pegged*” exchange rate
- “*Crawling-peg*” means that the actual nominal exchange rate changes smoothly over time
- In “*floating exchange rate regime*” market forces determine the value of currency without interference from the CB

The Gold Standard

- From pre-modern times until the Great Depression in 1930s, the world economy worked on the *Gold Standard*
- For *gold coins*, there is no need of an exchange rate as the quantity of gold in represents their value
- In the Gold Standard every country fixed its paper currency to a *certain amount of gold*
- The CB exchanged banknotes for gold at this price
- If actual exchange rates deviated from gold prices gold moved *among countries*
- In the early phase of the Bretton Woods agreement before 1970s, US Dollar was *fixed to gold*
- And countries fixed their exchange rate to the US\$

To float or to fix!

- There are *advantages and disadvantages* to both fixed and floating exchange rate regimes
- Fixed exchange rates help producers by *reducing uncertainty* for exporters and importers
- At the cost of giving up monetary policy in case of a recession
- And may cause large devaluations if shocks result in a misalignment of the real exchange rate
- Floating exchange rates permit *active monetary policy* in case of a recession
- At the cost of hurting producers by increasing uncertainty for exporters and importers
- And the economy adjusts to shocks smoothly

Convertibility and the exchange rate

- When countries had controls over capital mobility, fixed exchange rates prevailed
- In conformity with the *globalisation trilemma*
- But developing countries continued with fixed exchange rates *after* the removal of capital controls
- Defying the logic of the trilemma
- Turkey during 1990s is a typical example
- This mistake contributed to the *financial crises* encountered by many countries during 1990s
- The *incompatibility* of fixed exchange rates and discretionary monetary policy in case of convertibility is the ultimate cause of the economic crises Turkey experienced in 1994 and 1999-2001

Euro, EMU and currency boards

- *European Monetary Union* is a regional response to this dilemma
- Member countries of EMU (Euroland) give up their national currency and fix permanently the exchange rate among themselves
- The Euro floats against non-member currencies
- The Euro is a logical result of the single market
- Such arrangements are called “*hard peg*” because there is no possibility of exit (devaluation) from the fixed exchange rate
- In a “*Currency Board*” (Para Kurulu) the local currency is pegged to a strong currency (US\$, Euro) by law and CB prints money only against FX

Populism

- The concept of “*populism*” will help us understand better some of the macroeconomic problems faced by high inflation countries
- It is based on the belief that budget deficits are not *necessarily harmful* to economy
- Two versions:
 - Inflation promotes rapid economic growth
 - The budget deficit is self-financing through the Keynesian multiplier
- *Populist policies* shift the AD curve in the short-run, resulting in higher growth and higher inflation
- In the long-run they cause *external deficits* and the boom collapses with an *economic crisis*

Populism and politics

- “*Populist policies*” are often used in Turkey synonymous with “*bad policies*”
- It involves promises and implementation of policies to improve the welfare of lower income groups
- What distinguishes populism is not the objectives: the “*left*” (*social democrats*) have the same targets
- But the *methods used* to achieve these objectives
- Populism believes that income distribution can be improved without regard for the *basic principles of macroeconomics* about the budget balance, exchange rate misalignment, etc.
- Populism is dominant both in the “*right*” and the “*left*” political parties in Turkey

Populist policies

- Populist policies typically increase public spending without a corresponding increase in tax revenues
- *Redistributive income transfers*: higher salaries for civil servants, higher agricultural support prices, earlier retirement for the employed, larger subsidies for basic inputs and utilities, etc.
- *Social spending*: more on health and education, more investment for hospital, schools, etc.
- The budget deficit explodes, often financed by printing more and more money
- While the exchange rate is kept constant to prevent inflation and the interest rate down to promote growth

The populist cycle

- The “*populist cycle*” is a special business cycle
- The cycle begins with the rapid rise of public spending and of the budget deficit
- The additional demand injected by loose fiscal policy starts a *domestic spending boom*
- The interest rate and the exchange rate are repressed to contain inflation and to prolong the boom
- Domestic excess demand cause big rise in imports and *large current account deficits* appears
- Financed by short-term borrowing abroad
- Eventually international lenders or domestic residents get scared and the cycle ends in *crisis*
- A populist cycle normally last for *3 to 5 years*

From boom to bust

- When the financial markets realise that macroeconomic policies are not sustainable they *stop lending*
- Residents start *buying FX* to protect their liquid assets against the coming devaluation
- With the crisis, domestic currency falls freely, cost-inflation jumps up and domestic demands *collapses*
- The rise in inflation erodes the gains in real wages to levels below the beginning of the populist cycle
- The *vicious circle* of devaluation, inflation, rising public deficits, etc. destabilises politics
- At this point usually a new government comes to power and goes to the IMF for support and the IMF prescribes *very unpopular remedies*

Before and after convertibility

- The end of the populist cycle takes *different forms*, depending on capital controls or convertibility
- With *capital controls*, there is no domestic run on FX and no free fall of currency
- In turn, *shortage of FX* stops imports and therefore domestic production that uses imported inputs
- The last phase of the cycle involves serious shortages and black markets for FX and many goods
- With capital mobility, there are no shortages but the depreciation of currency speeds up and turns into a vicious *inflation-devaluation spiral*
- Unless something is done to restore confidence the economy may end up in *hyperinflation*

Turkey's FX crises

- Turkey experienced *three* important populist cycles in the last half century
- The first happened in *early 1950s* and ended with currency shortages, devaluation and the first major Standby Arrangement with the IMF in 1958
- The second began in *1973* (Ecevit-Erbakan coalition government) and continued to the last days of 1979
- Again with currency shortages, black markets, production halts, erosion of real wages, etc. which brought down Ecevit's minority government
- The new Demirel government initiated the famous *24 January 1980 Stabilisation Package* as part of the Standby Arrangement with the IMF

Populist cycle of 1989-1993

- The third populist cycle coincided with the decision to let the TL become convertible in *1989*
- It began with large rises in the *wages and salaries* of the public sector after ANAP lost the local elections in March 1989
- *Domestic demand* led the boom in Turkish economy in 1990 resulting in a large current account deficit
- *The Gulf war* slowed domestic demand in 1991 but after the elections Demirel government continued with populist policies
- In 1993 the real deficit of the public sector reached 9.1 % of GNP and the deficit in the current account reached \$ 6 bn. (*4 % of GNP*)

The crisis in 1994

- When Çiller was elected to head the DYP in 1993, she reduced interest rates and tried to keep the exchange rate under pressure before the local elections in April 1994
- In January 1994 there was *an attack on the TL*
- US\$/TL moved from below 15.000 TL in January 40.000 TL in April 1994
- There were no currency shortages but TL lost half its value in four months
- A *stabilisation package* as part of a Standby Arrangement with the IMF was announced in April 1994
- In 1994 WPI rose by 150 %
- Real wages of public and private sector employees fell by 40 % to below 1989 levels

Other causes of crises

- It is wrong to attribute *all* economic crises and big devaluations to populist policies, i.e. large and unsustainable public sector deficits financed with short-term borrowing abroad
- Like Turkey's three populist periods described above, many crises in *Latin America* also fall into this category
- But the financial crises in East Asian Tigers, Korea, Thailand and Malaysia happened *despite* healthy public finances
- Their cause was *investment booms* fuelled with "hot money" and the CB's inability to reduce demand by tightening monetary policy

"Hot money"

- Short-term foreign borrowing by domestic financial institutions is also called "*hot money*"
- For "hot money" to flow into a country
 - *Local interest rates* must be higher than world interest rates
 - There must be an explicit or implicit *guarantee* of the CB over the future course of the exchange rate
- This implies above average returns for international lenders without risks
- Some of the lending could be *overnight*
- Usually maturity is less than one year
- "Hot money" is a major cause of *instability* for developing countries

Balance sheet crises

- "Hot money" increases the fragility of the *balance sheets* of the financial institutions who borrowed abroad in FX to lend domestically in local currency
- Once foreign banks realise this, they cut lending
- Usually, at this point demand for FX from domestic residents also rises: a substantial upward shift in the *Net Capital Outflow NCO* curve
- If CB tightens monetary policy, high interest rates only make things worse for borrowers
- *Meltdown* in currency and money markets lead to rapid currency depreciation and bankruptcies among financial and non-financial firms
- The economy faces a full scale *financial crisis*

Stabilisation programs

- There is a blueprint to most IMF supported *Stabilisation Programs*
 - *Fiscal tightening* in the form of higher taxes and lower spending by the government, leading to a sustainable budget deficit
 - *Monetary tightening* in the form of higher interest rates to curb investment and consumer spending
 - *Large devaluation* of the currency in order to improve the trade balance and the current account
- In Turkey indirect taxes rise, leading to higher inflation
- IMF supports the program with *FX loans*, which help both the foreign deficit and the budget deficit

Currency substitution

- Residents of a country suffer *big losses* during economic crisis and unexpected depreciation of the currency and the rise in inflation
- When the currency is convertible, they try to protect themselves from such losses by moving their liquid assets from local currency into *FX assets*
- In other words, they *substitute local currency* with a reliable (low inflation = sound) currency
- This is also called “*dollarisation*”
- Dollarisation had started in Turkey before 1989 but accelerated after the crisis in 1994
- Currency substitution* further intensifies macro-economic instability in the economy

“Phoney money”

- “Old TL” fulfilled only partly the first function of money (medium of exchange) while the other two were left to foreign currencies in circulation
- TL became “*phoney money*” (*dandik para*) and thus always under threat of attack by Turkish citizens
- CB was forced to keep interest rates high in order to defend the TL
- Even in case of a recession, monetary policy could not be loosened for fear of an attack on the TL
- Which amplified the effect of any negative foreign or domestic shock to the economy
- Resulting in very large fluctuations in output and increased *macroeconomic instability*

Disinflation programs

- The only way to get out of the *vicious circle* of inflation, dollarisation, output volatility and macroeconomic instability is to disinflate
- But decades of high and volatile inflation implies a strong *inflation inertia* as economic actors have learned from unsuccessful past efforts by governments that inflation will remain high
- The sacrifice ratio is therefore unaffordable
- IMF moves into the picture to solve the impasse
- Disinflation programs* receive IMF support even if there is no BoP and FX liquidity problems
- Like the disinflation program initiated in Turkey in 2000 with a Standby Arrangement with the IMF

Nominal anchor

- One way of breaking inflation expectations is to fix the *future course* of exchange rate in advance
- Which reduces costs and inflation without a deep recession and high unemployment
- “*Exchange-rate based stabilisation (disinflation) programs*” were used by many countries with high inflation like Turkey
- At first, inflation goes down and economic growth picks up
- But the fall in inflation is less than the preset fall in nominal depreciation: *currency appreciates*
- The resulting rise the current account deficit is financed *by the IMF* through FX loans

Nominal anchor in 2000

- In Turkey, CPI fell from 68.8 % to 39 % while GNP growth rate rose from - 6.3 % to 6.4 % in 2000
- This was achieved by the *downward shift* in the short-run Phillips curve resulting from the exchange rate anchor
- The sacrifice ratio was *negative* in 2000: falling inflation was accompanied by higher growth rate
- Very low or even negative sacrifice ratios constitute the main attraction of an “*exchange-rate based disinflation program*”
- Unfortunately the government and the public opinion failed to see this point and the program collapsed in 2001

November 2000 - February 2001

- The last crisis is not of the “*public sector and current account deficits*” kind but of the “*balance sheet troubles*” type
- The crisis was triggered by the deterioration in the balance sheets of banks
- By the large duty losses accumulated at the state banks (Ziraat and Halk) and risky positions taken by private banks
- When a *liquidity squeeze* appeared in November, the peg in the exchange rate prevented the use of monetary policy to inject liquidity into the system
- A *political turbulence* in February was sufficient for a run on TL and the abandon of the program

The health of the banking sector

- Banking sector* plays a key role in macroeconomic stability in all economies, developed and developing
- If *problems accumulate* in the banking sector, unless governments act for a quick remedy, a long period of recession or slow growth follows
- Banks are *vital links* between saving and investment decisions and banking problems breaks the *circular flow of income and spending* in the economy
- When banking system stops lending to heal its own problems, investment spending and therefore aggregate demand falls, causing a serious recession
- And aggravates the balance sheets of the banks because of economic slowdown increases *bad loans*

Moral hazard in banking

- A failure in the banking sector is most undesirable for governments because of its long term negative effects on output
- Larger the bank facing failure, the more difficult it becomes to let it fail
- The slogan “*too big to fail*” is often used
- Deposit insurance schemes* are part of the problem as well as the solution
- Knowing that final risks are born by the taxpayers, banks take unnecessary risks in search of large profits totally neglecting *risk management*
- Individual savers are attracted by higher interest rates offered by banks facing liquidity constraints

Risks in the banking sector

- Banks receive deposits from the public and lend to private firms or to the government
- Deposits have a *much shorter maturity* than the loan book for all banks
- The *maturity mismatch* corresponds to the difference of the maturity of a bank’s assets (loans) and liabilities (deposits)
- Interest rate *volatility* increases the risk of loss for the banks from maturity mismatch
- Banks borrow or accept deposit in FX and lend in domestic currency, implying a *currency mismatch*
- Exchange rate *volatility* increases the risk of large losses for banks from currency mismatch

Crisis indicators

- Some developments and data series are considered to be *good indicators* of the risks of potential crisis
- Probably the most important indicator is the *current account balance*
- There are few examples of a financial crisis with healthy current account surpluses (only Russia had a current account surplus and crisis in 1998)
- The *overvaluation of the real exchange rate* can be another indicator but not always a good one
- Level of *public debt* and borrowing requirements of the Treasury compared to the size of the domestic financial markets is also important
- There exists no *unfailing criteria* to detect crisis

Inflation: long term costs

- A major cause of the weaknesses of the banking sector is *high persistent inflation*
- High inflation prevents the development of financial markets everywhere because of it implies high risks for nominally denominated assets
- Savers in a high and volatile environment prefer hard assets such as real estate, gold and FX
- But the first two are *unproductive assets* and the third brings currency risks to the banks
- All three reduce the average growth rate of the economy given the saving rate
- High inflation countries have smaller and more fragile financial systems, lower growth, bigger output volatility and face more often crises

Inflation: empirical evidence

- Empirical research has clearly shown that, other things being equal, economies with lower inflation experience higher average growth rates
- Among the so-called “*economic miracles*” of the last decades, there is not one single economy which had two-digit inflation levels
- Turkey seemed to defy this rule and grow at a reasonable speed despite high inflation throughout the 1980s and 1990s
- But the end result only confirms the rule
- GNP at the end of 2002 will be about *the same level* as in 1997
- Corresponding to *zero total growth* for five years

Inflation: distribution of income

- The most dangerous *fallacy of populism* lies in the belief that the distribution of income can be improved despite large budget deficits
- Average growth rates and improvements in the distribution of income are positively correlated
- *Fast growth* achieves better income distribution by offering more job opportunities to the poor, by faster rising real wages and by lower unemployment
- There is not a single country with an equitable distribution of income and two-digit inflation level
- Turkey has one of the worst income distributions in the world and high inflation has certainly been a major contributor to this outcome

Corruption and good governance

- *A drama*: poor countries need most a clean government and good governance but they have neither one or the other
- A “chicken or egg” problem: are they poor because they are corrupt and have wasteful governments or are they corrupt and have bad governance because they are poor?
- Rich economies have less corruption and better governance
- Corruption and bad governance, often through political and bureaucratic systems, constitutes the *invisible side* of bad macroeconomic policies in developing economies like Turkey