

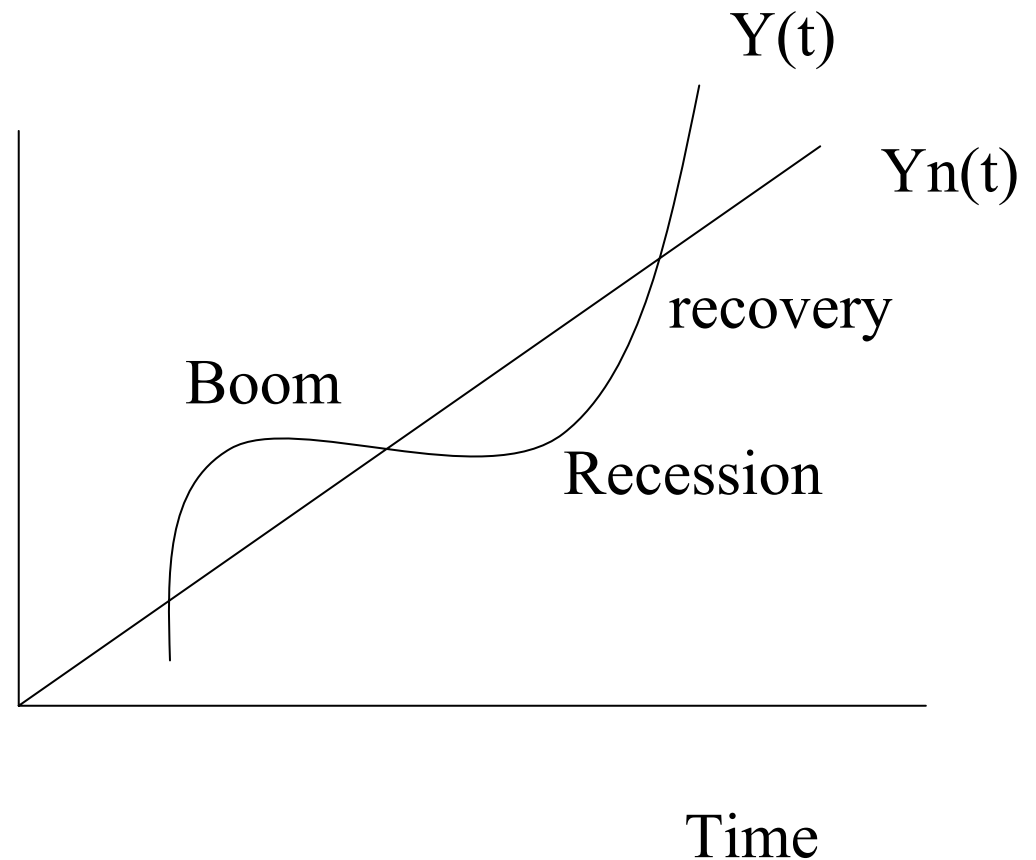
Macroeconomic Theory and Policy

Lecture 1

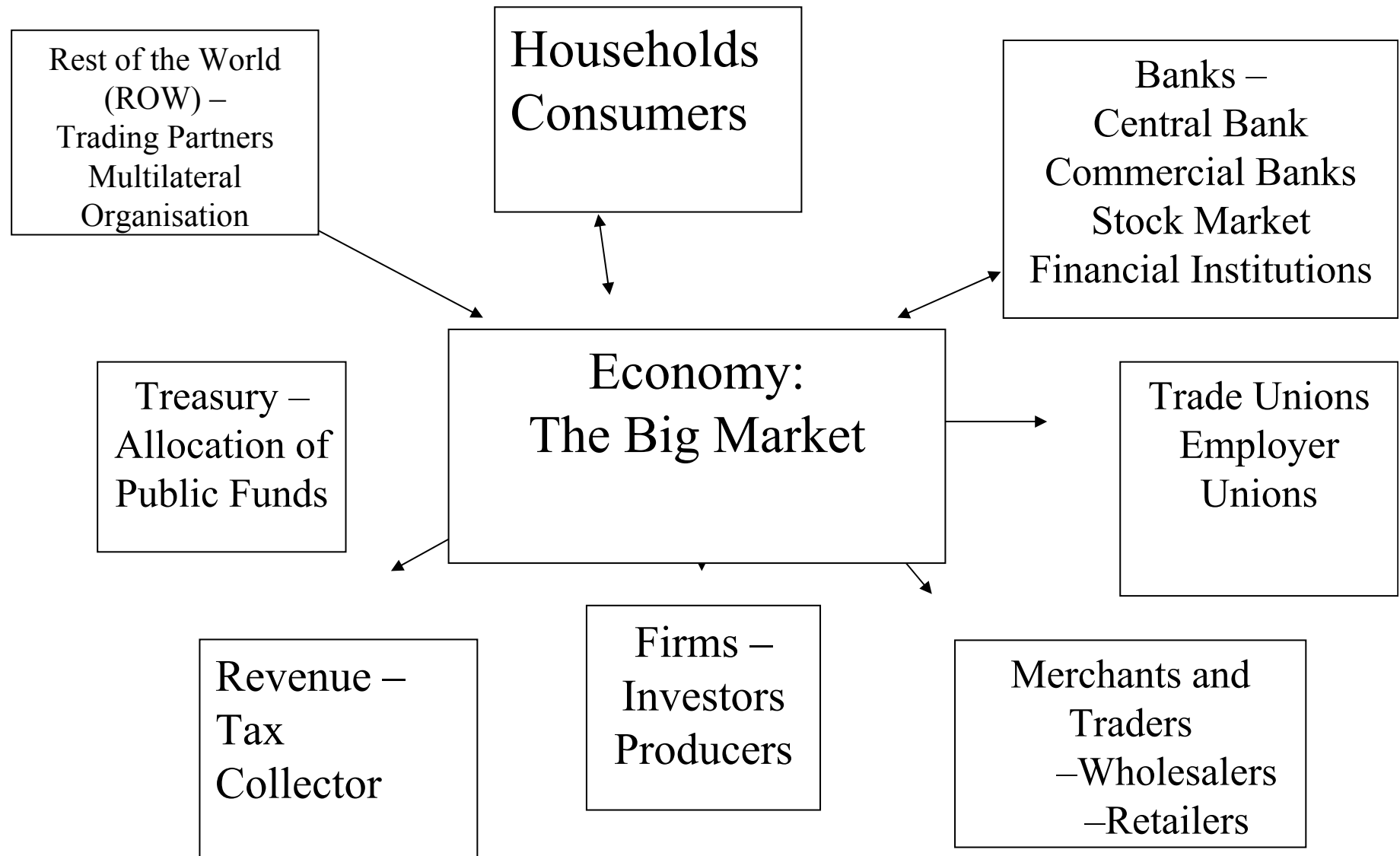
What is Macroeconomics ?

Macroeconomics is a Science of Analysing an Economy and Art Of Policy Making

- It is a science that
 - a. studies how the economy works in good, bad and normal times.
 - b. studies fluctuations of economic variables around their trends.
- It is art of policy making to maximise welfare or minimise the loss of it from unwanted fluctuations.



An Overview of Players and Shapers of an Economy



An Example of Static and Dynamic Macroeconomic Models

Static Model:

$$C = a_0 + a_1 * (Y - T)$$

$$Y = C + I + G + X - M$$

Dynamic Model:

$$C(t) = a_0 + a_1 * (Y(t) - T(t))$$

$$I(t) = b * (Y(t-2) - Y(t-1))$$

$$Y(t) = C(t) + I(t) + G(t) + X(t) - M(t)$$

An example using a spread sheet

An Example of a Static Macroeconomic Model

$$Y = C + I + G$$

$$C = 200 + 0.8*(Y-T)$$

$$T = 20 \quad G = 20 \quad I = 30$$

$$Y = 200 + 0.8*(Y-T) + I + G$$

$$Y - 0.8Y = 200 - 0.8*(20) + 30 + 20$$

$$0.2 Y = 200 - 16 + 50$$

$$Y = 234 / 0.2 = 5*(234) = 1170$$

$$\text{MULTIPLIER} = 5$$

$$C = 200 + 0.8*(1170 - 20) = 1120$$

$$Y = 1170 = 1120 + 20 + 30 = C + I + G$$

An Example of Dynamic Macroeconomic Model

$$Y(t) = C(t) + I(t) + G(t)$$

$$C(t) = 200 + 0.8 * (Y(t-1) - T(t-1))$$

$$T(t-1) = 20; G(t) = 20; I(t) = 30; Y(t-1) = 500$$

$$Y(t) = 200 + 0.8 * (500 - 20) + 30 + 20$$

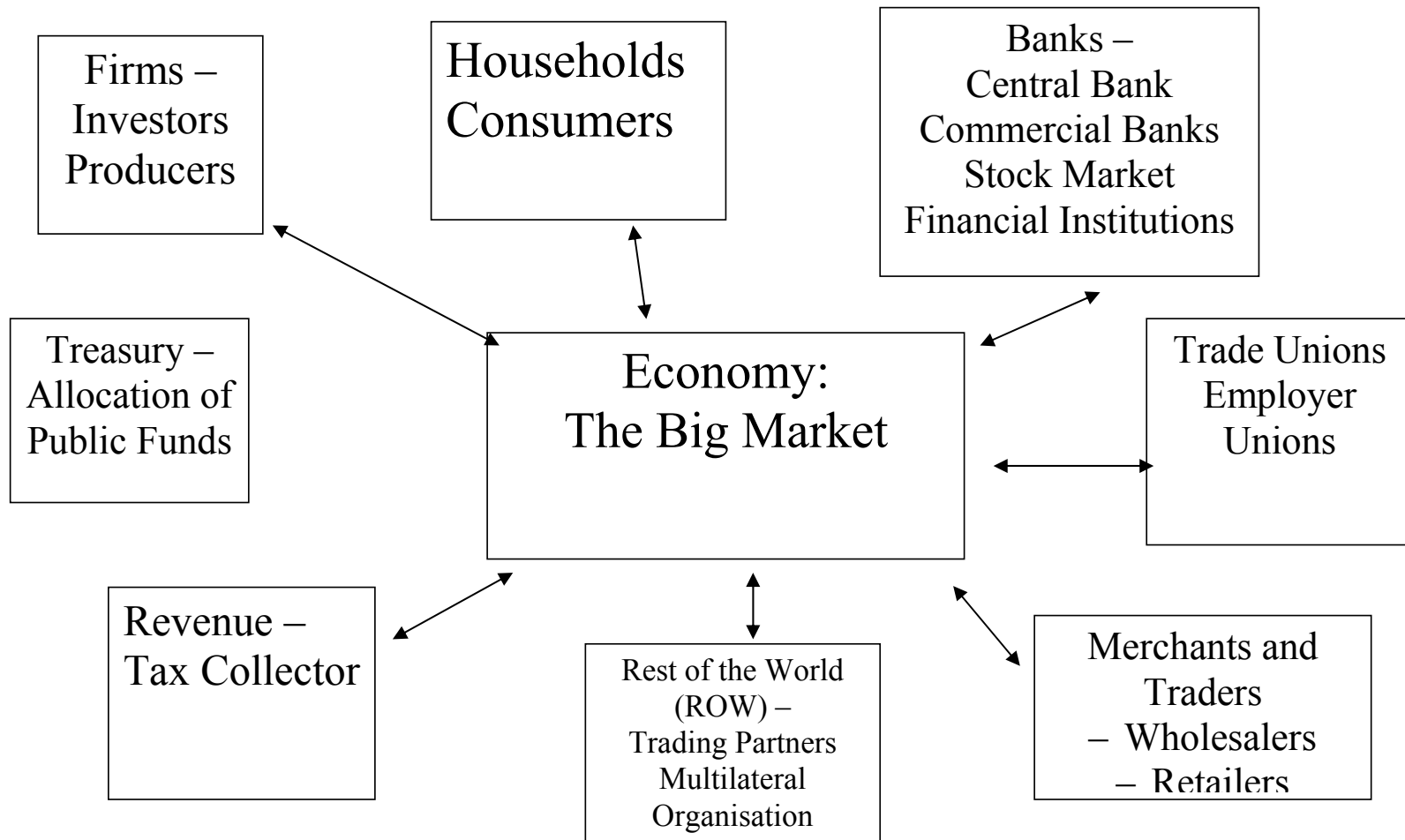
$$Y(t) = 200 + 384 + 30 + 20$$

$$Y(t) = 200 + 384 + 50$$

$$Y(t) = 634$$

$$Y(t+1) = 200 + 0.8 * (634 - 20) + 30 + 20 = 741$$

An Overview of Players and Shapers of an Economy



Micro-Foundation to Macro Variables

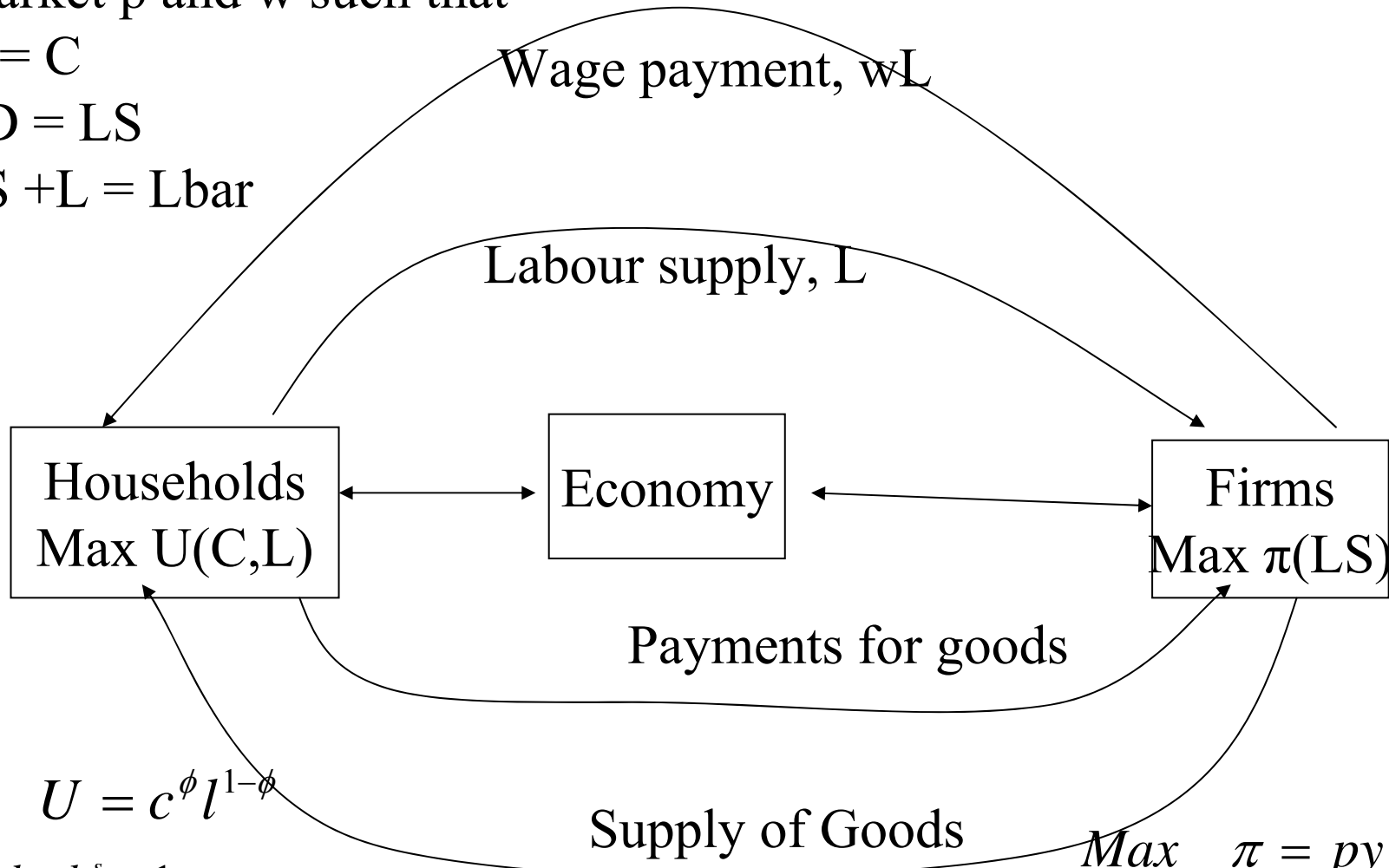
General Equilibrium with a representative household and firm

Market p and w such that

$$Y = C$$

$$LD = LS$$

$$LS + L = Lbar$$



$$Max \quad U = c^\phi l^{1-\phi}$$

$$l + h^s = 1$$

$$pc = wh^s + \pi$$

$$c \geq 0; l \geq 0; h^s \geq 0$$

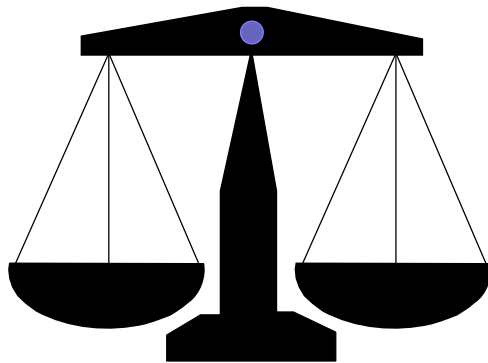
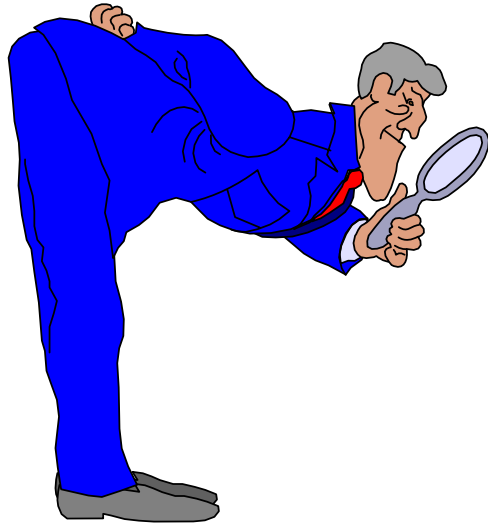
Supply of Goods

$$Max \quad \pi = py - wh^d$$

$$y \leq (h^d)^\alpha$$

$$y \geq 0; h^d \geq 0$$

Macroeconomic Policy

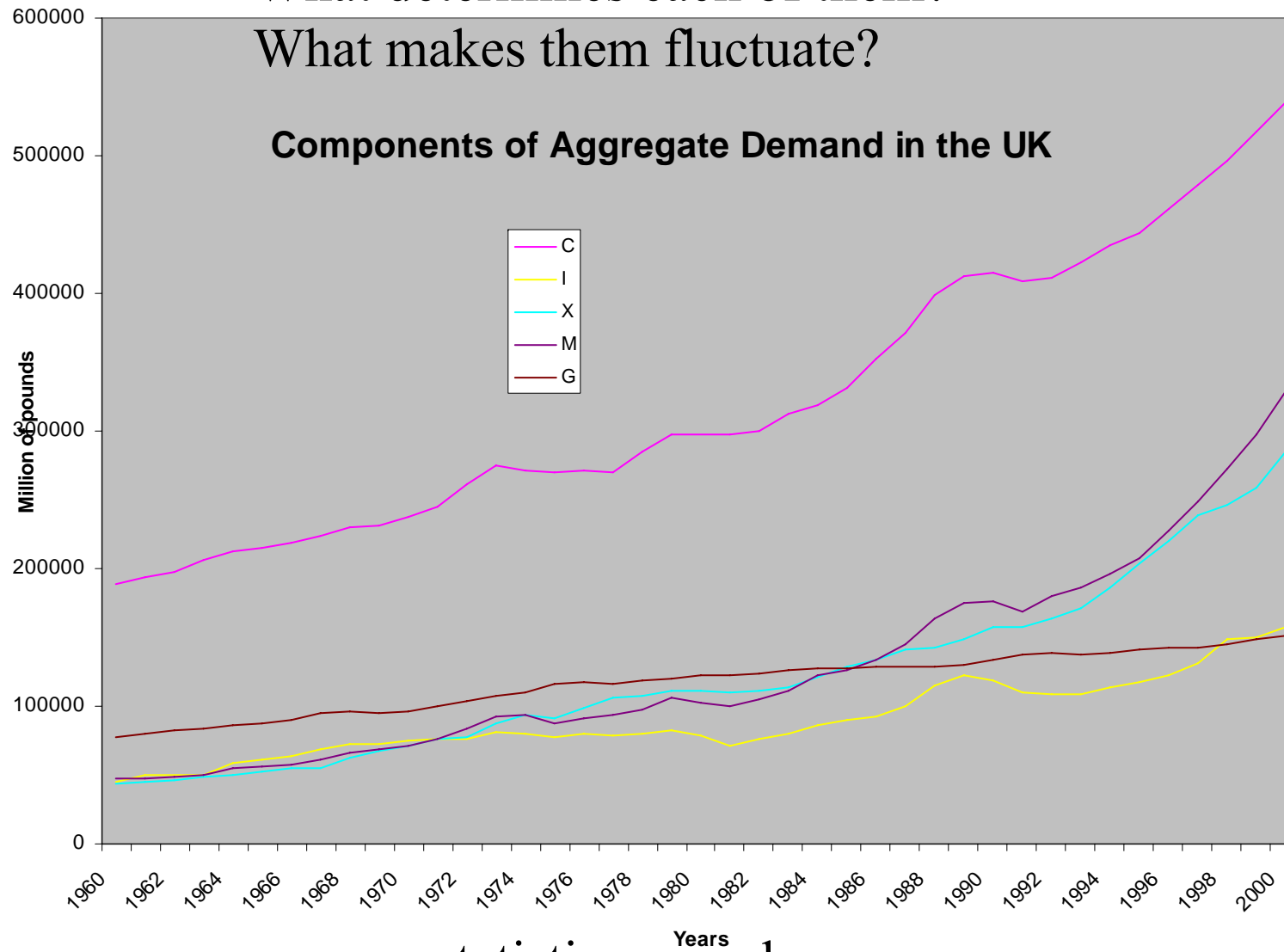


- Fiscal Policy
taxes
expenditure
debt
- Monetary Policy
interest rate/ M-supply
exchange rate/trade
stock market
- Growth/supply side 9

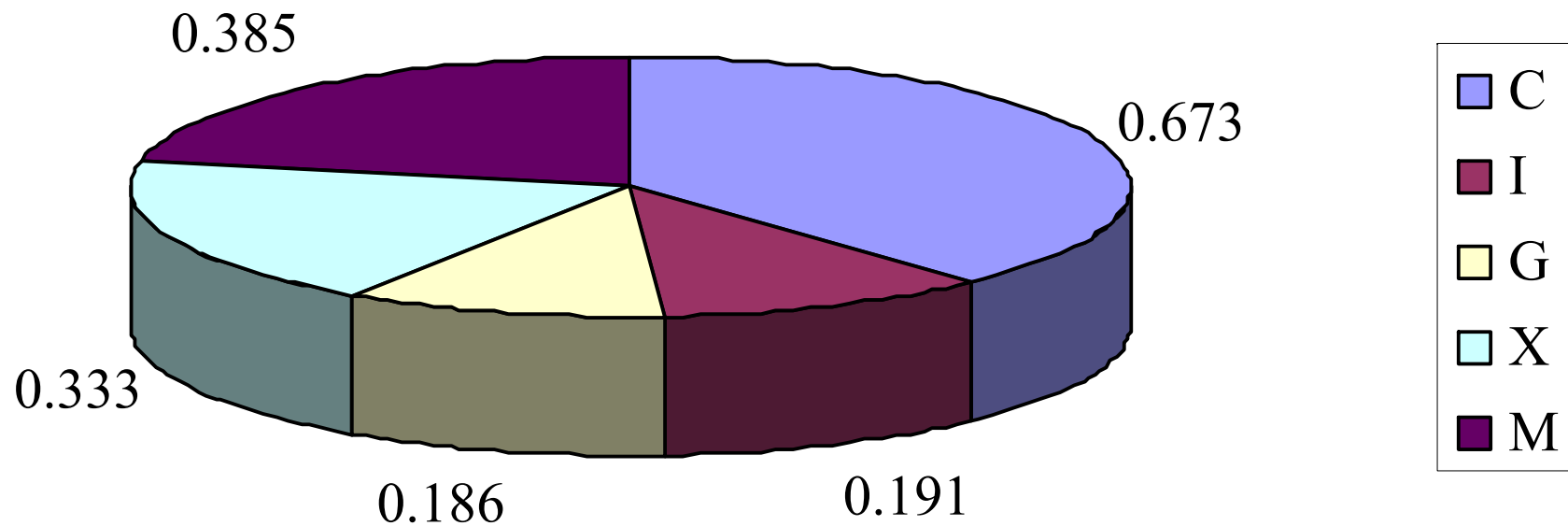
Analysis of Macroeconomic Variables

- Quantities:
 - GDP (GNP) and Its components
 - Consumption, Investment Government spending
 - Exports and imports
 - Employment and Capital Stock
 - Flows of saving and investment, Stock of Money
- Prices
 - GDP Deflator and Various price indices
 - Interest rate, Exchange Rates
- Analysis
 - Theory and Model: Cause and Effect Relation
 - Diagrams and system of equations
- Evidence
 - Charts and tables of levels, Growth rates, variances, covariance Correlation, regression

GDP and GDP Components. What determines each of them? What makes them fluctuate?

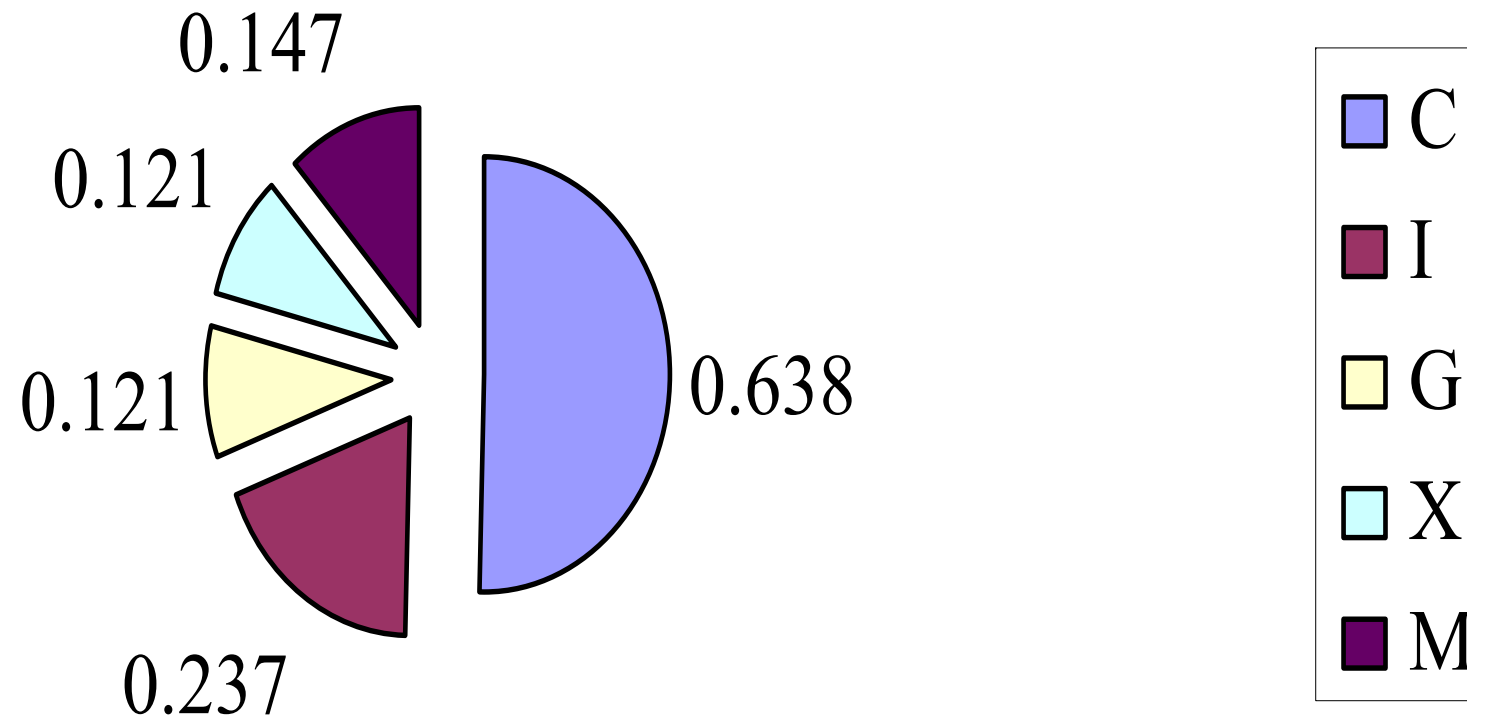


Components of Aggregate Demand in the UK in 2000 (WB-CD)

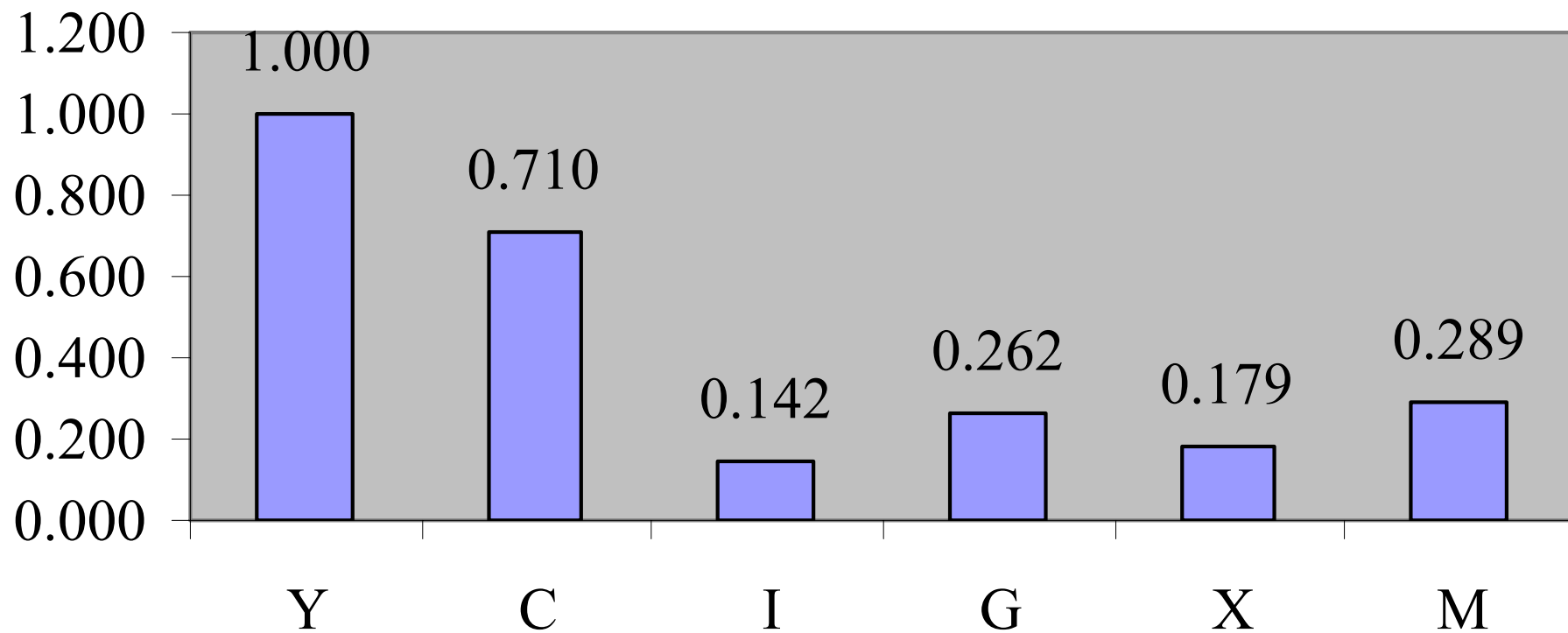


Source: Hull University Network Start/applications/Economics

Components of Aggregate Demand in India 2000

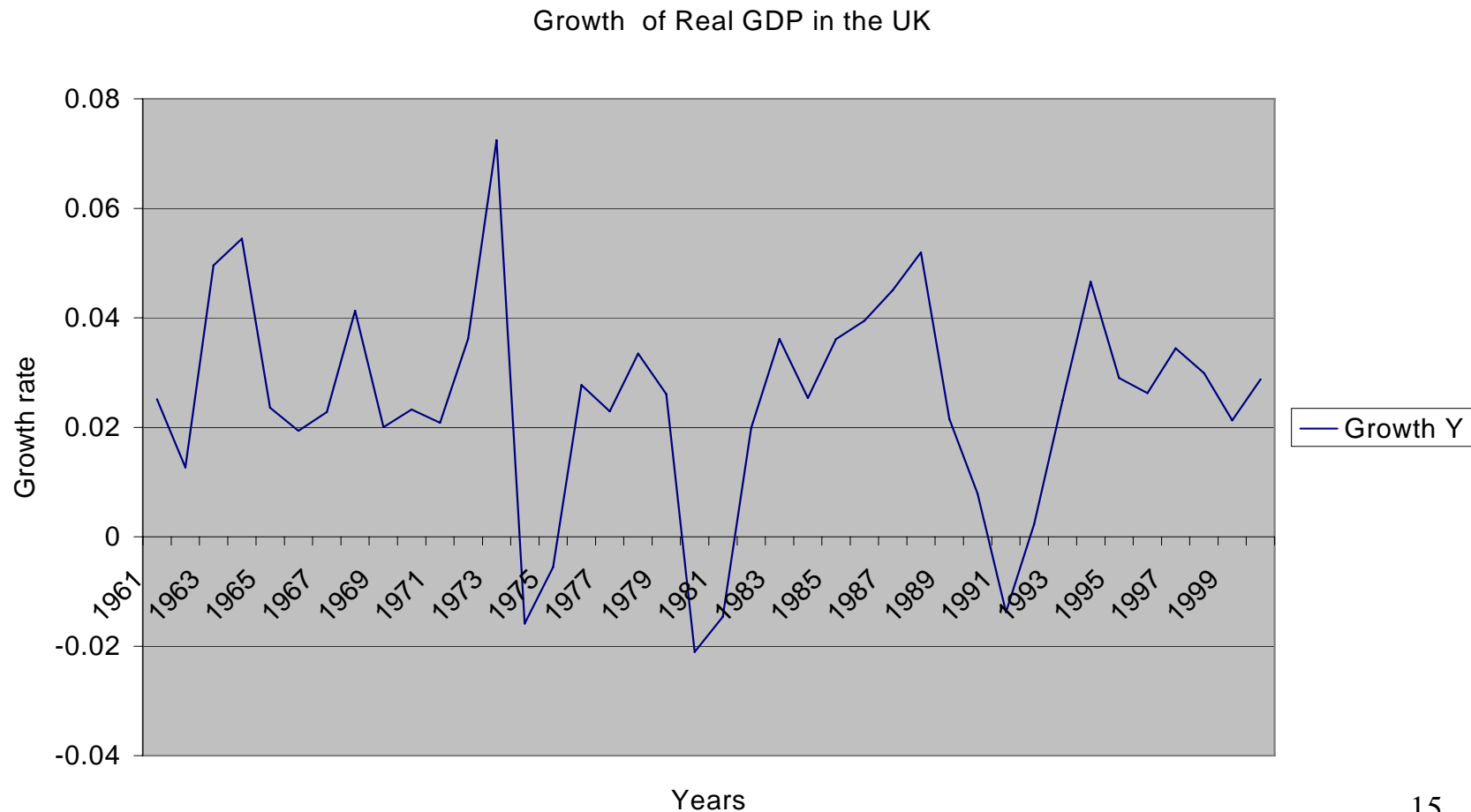


GDP and its Component in Ethiopia, 2000



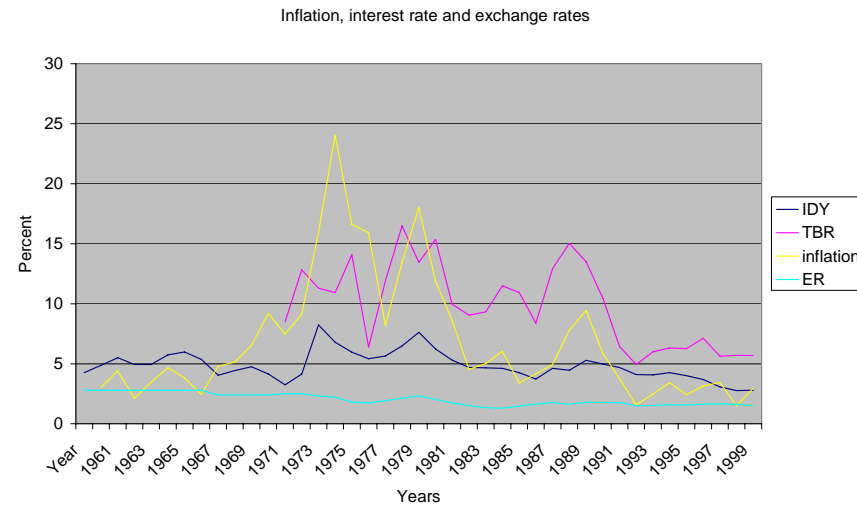
Macroeconomics is about Growth Rates

- It studies growth rates over time across countries.



Macroeconomics Studies Economy Wide Prices

- It is a study of price level, exchange rate and interest rates.
- It is a study of monetary and fiscal policy variables
- It is the study of trade balance and the exchange rate



	Growth rt	S/Y	I/Y	Popg	XM/Y	capgrow
France	2.05	20.85	20.69	0.447	44.25	2.10
Germany	1.84	23.47	21.65	0.249	53.24	1.79
United Kingdom	2.20	17.30	17.83	0.282	52.75	3.13
United States	3.02	17.41	18.46	1.061	20.62	4.43

Macroeconomics Studies why Growth rates of Output and Employment Vary across Countries

It is a study about

- why the economic growth rate is higher in one country and low in another country?
- Why unemployment and inflation rates are higher in one country than in another country?

	Growth				Inflation	Real
	P/Y	S/Y	I/Y	(X+M)/Y	r	t
China	8.15	18.40	36.88	31.44	10.14	2.33
Hong Kong, China	4.22	23.01	28.84	245.16	9.95	4.61
Ireland	4.71	16.77	20.31	120.58	8.49	4.22
Korea, Rep.	5.81	24.47	32.24	67.78	10.97	3.71
Japan	2.33	20.43	29.50	20.77	1.17	3.85
Malta	4.11	23.47	28.40	178.94	3.30	4.85
Portugal	2.85	14.03	26.79	67.30	36.77	5.30
Singapore	5.02	33.56	38.58	360.17	2.34	4.96
Thailand	4.74	21.07	32.30	73.40	6.03	8.49

Calculate the Nominal and Real GDP with given prices and Quantities

Prices (in Euro)

Year	Apples	Pears	Petrol
2000	1.0	2.0	5.0
2001	1.0	3.0	6.0

Quantities

Year	Apples	Pears	Petrol
2000	300	100	50
2001	400	150	40

Calculation of Nominal and Real GDP

- Nominal GDP 2000
- $1*300 + 2*100 + 5*50$
 $= 300 + 200 + 250$
 $= 750$

- Nominal GDP 2001
- $1*400 + 3*150 + 6*40$
 $= 400 + 450 + 240$
 $= 1090$

$$\text{Growth rate} \{ (1090 - 750)/750 \} * 100$$
$$= 45.33 \%$$

What is wrong here?

Real GDP 2000

- $1*300 + 2*100 + 5*50$
 $= 300 + 200 + 250$
 $= 750$

GDP of 2001 in 2000 prices

- $1*400 + 2*150 + 5*40$
 $= 400 + 300 + 200$
 $= 900$

$$\text{Growth rate} \{ (900 - 750)/750 \} * 100$$
$$= 20.00 \%$$

What is the GDP Deflator (price index)?

GDP Deflator

$$= \text{Nominal GDP} / \text{Real GDP}$$
$$= 1090 / 900 = 1.211$$

References

- <http://www.statistics.gov.uk>
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