ECN 106 Macroeconomics 1 $\,$

Lecture 1

Giulio Fella

© Giulio Fella, 2012

ECN 106 Macroeconomics 1 - Lecture 1

COURSE ORGANIZATION

- ▶ LECTURES: Once a week 15-17 in Mason Lecture Theatre
- ▶ CLASSES: Once a week, starting in week 2
- ► TEXTBOOK: G. Mankiw, *Macroeconomics*, 7th International Edition, (Worth Publishers, 2010)

ASSESSMENT

- ▶ 2 mid-term tests administered during **tutorial** classes:
 - Random date, announced in lectures the week before
 - the average counts for 20% of the final mark
- ▶ Final exam: remaining 80%

COMMUNICATION AND COURSE WEBPAGE

- Course webpage: accessible on WebCT (http://www.elearning.qmul.ac.uk/webct)
 - Lecture notes and problem sets available the Thursday (evening) before the relevant lecture
- ▶ Interesting (optional) links:

http://www.diigo.com/list/giu123/macro1

- What determines the level of output and employment both in the short and the long run
- What is the effect of fiscal and monetary policies on aggregate variables.
- Can policy exacerbate or dampen recessions and/or expansions.

Unlike microeconomics which studies the choices and interaction of individual agents (e.g. consumers and firms), macroeconomics is the study of the economy in the aggregate.

- Unlike microeconomics which studies the choices and interaction of individual agents (e.g. consumers and firms), macroeconomics is the study of the economy in the aggregate.
- Macroeconomics is about general equilibrium; i.e. interaction between (some) markets.

Scope of macroeconomics I

What determines **aggregate** production/income.



Green line: GDP level Red line: GDP % growth rate Blue line: average GDP % growth rate Shaded regions: recessions

© Giulio Fella, 2012

ECN 106 Macroeconomics 1 - Lecture 1

Scope of macroeconomics II

What determines the **aggregate** unemployment rate.



Scope of macroeconomics III

What determines the **aggregate** price level and its rate of change (i.e. the rate of inflation).



Income is an **imperfect measure of economic well-being**. In the end what matters is utility, but:

- utility cannot be aggregated, in general;
- utility is unobservable and depends on variables out of the realm of economics.

Utility, though, is increasing in consumption which is related to income and wealth.

Why we care about unemployment

- ▶ If the workers who are unemployed could be engaged in production, aggregate output would be higher (not necessarily utility, though).
- ▶ Unemployment imposes financial and psychological strain.

Why we care about inflation

- ▶ Expected inflation (an anticipated increase in the aggregate price level) increases the cost of keeping cash and results in shoe-leather costs: e.g. more frequent cash withdrawals.
- Unexpected inflation redistributes welfare (e.g. creditors lose and debtors gain if inflation is higher than expected) and introduces uncertainty.
- Both are distortionary in the absence of indexation (e.g. fiscal bracket creep).

- Economists think using *mathematical* models.
- Models are *abstract* (simplified) representations of the real world.
 - Why mathematics? You can test your models!
 - Why abstraction? The real world is too difficult to be understood without simplifying it.

Economic models

▶ A model is a theory which tries to explain a relationship among economic variables.

Example: demand and supply for wheat.

$$Q^{d} = Income - bP$$
$$Q^{s} = weather + cP$$
$$Q^{d} = Q^{s}$$

Economic models

► A model is a theory which tries to explain a relationship among economic variables.

Example: demand and supply for wheat.

$$Q^{d} = Income - bP$$
$$Q^{s} = weather + cP$$
$$Q^{d} = Q^{s}$$

- ▶ Two kinds of variables:
 - Exogenous variables: those which the model does not try to explain (in our case income and weather)
 - Endogenous variables: those which the model wants to explain (in our case the P, Q^s and Q^d).

Endogenous variables as a function of exogenous ones.

$$P = f(Income, weather)$$

 $Q^d = g(Income, weather)$
 $Qs = h(Income, weather)$

For a solution to exist, we need at least <u>as many equations</u> as endogenous variables.

The concept of cause

Only an exogenous variable can be a cause.

E.g. the statement the price is high because demand is high is meaningless. Demand (the quantity demanded) is endogenous.



Measuring economic variables

- Aggregate Income/Production: Gross DomesticProduct (GDP)
- ▶ Aggregate price level: GDP deflator and CPI deflator
- ▶ Unemployment: unemployment rate

Gross domestic product (the output or expenditure side)

The most used measure of aggregate production. It measures:

the value of the <u>final</u> goods and services produced <u>domestically</u> in a given period = = the sum of value added in the <u>domestic</u> economy in a given period

value added = value of final production - value of intermediate inputs

Avoiding double-counting

Cars		Steel	
Revenues:	400	Revenues:	200
Costs:		Costs:	
Steel	200	Raw mat.	100
Labour	100	Labour	50
Profits:	100	Profits:	50

Final production: 400

Value added: 200+(400-200)=400

© Giulio Fella, 2012

Flows and stocks

- Stock: quantity measured at a point in time (e.g. water in a bucket)
- Flow: a quantity measured over a period of time (e.g. water through a pipe)

Flow variables in economics: GDP, investmest, saving, deficits.

Stock variables: wealth, capital, unemployment rate.

GDP and factors income (the circular flow)



The income of all productive factors:

- ▶ Labour income: wages
- ► Capital income:
 - Income from rented capital: rentals
 - Income from firm-owned capital: dividends and interest on corporate bonds

How can the Income = Expenditure identity hold if some goods are not sold within the period?

We must distinguish two cases:

- ▶ The good is storable: then the unsold quantity is accounted for (at market prices) in expenditure as <u>inventories</u> (it is treated as if the owners of the firm had bought the unsold quantity)
- ► The good is not storable: it does not enter expenditure and profits are reduced by the excess of costs over sales

Example

Market value of total output = 100

Nails		Ι	Ice cream	
+	-	+	-	
Sales 80	Raw m. 50	Sales 8	0 Raw m. 50	
Δ Inven-	Labour 20		Labour 20	
tories 20	Profits 30		Profits 10	

Total final value of goods and services produced domestically = Total domestic income

GDP can be measured from the income or the expenditure side. The result <u>has</u> to be the same, barring accounting errors. Problem in constructing an aggregate output measure (product side): summing apples and oranges!

We need a common unit of account \rightarrow convert everything into currency by multiplying by prices

 $GDP = P_1Q_1 + P_2Q_2 + P_3Q_3 + \dots$

What we want to measure is real GDP; i.e. the physical amount of goods and services available. If all prices double, but quantities are unchanged individuals are not better off.

- Nominal GDP: uses current prices. Increases with price increases even if quantities are unchanged
- ▶ Real GDP: uses prices in a fixed base year.

Problem: the change in real GDP over time depends on the choice of base year (it depends on relative prices).

Nominal GDP in year $t = \sum_i P_i^t Q_i^t$

Real GDP in year t at year j prices $= \sum_i P_i^j Q_i^t$

© Giulio Fella, 2012

GDP measures the total income <u>produced domestically</u> whether it accrues to factors owned by home or foreign residents.

Gross National Product (GNP) = total income earned by home residents (both at home and abroad) = GDP + net factor income from abroad

- ► Aggregate price level: averaging prices of different goods.
- ▶ We want to measure the "cost of living". Which weights to use?
 - Consumer price index (CPI): uses fix weights. Representative consumption bundle.
 - GDP deflator: the weights are the quantities produced domestically in the current year (they change over time)

GDP versus CPI deflator

- CPI deflator: overstates changes in the cost of living as individuals move away from items whose price increase.
- ▶ GDP deflator: nominal GDP/real GDP.
 - It does not reflect that substitution away from goods may reduce consumer welfare.
 - Unlike CPI it takes into account increases in the price of goods bought by firms or the government.
 - It does not account for increases in the price of goods produced abroad.

The unemployment rate

- Total labour force L = U + E
- U = Number of unemployed workers
- E = Number of employed workers
- Participation rate = L /total working-age population
- Unemployment rate = U/L