Contents

Macroeconomics - Week 1

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What is Economics

Macroeconomnmics is the study the economics of the aggregrate, including monetary & fiscal policy, national output, exchange rates, rates of employment and inflation, etc. These are Issues of first order importance, having real economic effects on people and governments. Understanding the modern world requires an understanding of macroeconomics.

Modern economics goes back to "General Theory of Employment, Interest and Money" written by John Maynard Keynes in 1936. This was during the Great Depression and saught to provide a new toolset to understand and analyze the macro economy.

Economics is the science and art of decision making. In general, the needs and wants of a society are *infinite*, yet the resources required to fulfill these wants and needs are *finite*. This requires a certain allocation of resources to best meet society's needs. Economists study how these choices are made and the effects of these choices, as well as whether these choices will require public policy in order to improve the outcomes.

The Market Mechanism

societies have used different mechanisms to allocate their resources.

Command economies (Russia) are where the government planning agencies made decisions as to where scare resources will be put. Market economies allow for a decentralized approach, one where the price system is used for resource allocation decision making. Consumers and producers try to optimize their interests, by reacting to the demand and supply produced by the other, reaching an *equilibrium*. This is called the *magic of markets*. This is a highly efficient way of dealing with the allocation of scare resources.

Micro vs Macro

Most economists see themselves as working in one of the two disciplines, though the precise definition of each are a little fuzzy.

Microeconomic analysis emphasizes indiual units of the markets and the decisions each player makes in response to the market.

Example micro questions:

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*   With a limited budget, how should members of an indivual household
    organize spending across goods and serbvices to make best use
    of limited resources?
*   Given market conditions, how does a firm choose how much to produce?
*   Will prices coordinate household spending and firms production
    in a way that best allocates societys' limited resources across
    competing uses?
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Macroeconomics shifts the focus to the larger aggregate.

Example Macro questions:

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*   What dfactors determine how much output a nation produces?
*   Why fdo recessions occur?
*   Why do different economies have diferent rates of infaltion?
*   What roles do montary and fiscal policy play in managing the
    economy?
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Fundamental Welfare Theorems

There are two fundamental welfare theorems. These place the study of macroeconomics in context.

The first fundamental theorem states that under ideal conditions, decentralized decision making conducted through the mean of the market will led to an optimal allocation of resources. Optimal outcome is a situation where there exists no

possible reallocation of resources which will make any one person better off without harming at least one other person. This outcome is often known as Pareto optimality.

The second states that there exists a market determined outcome that will support any Pareto efficient allocation.

These are important intellectual foundations in the economists view that undermine the view that market based allocations produce highly desirable outcomes.

A great deal of ME deals with market based economies that do not allocate resources at an optimal level, where the theorems break down. There is not complete concensus amongst scholars. There are many additional models which seek to attribute these departures.
some analysis attempts to view "new-classical economics" or "real business cycle theory".

Keynes saw much of macroeconomic outcomes being a result of market failure. The traditional theory was only a special case of the actual world. The key is careful management of the economy, recognizing there are limits of what goverments can achieve.

Macroeconomic Themes

Indicators and Performance

What indicators of performance are there?

1. Gross Domestic Product - a measure of goods and services produced in an economy over a specified time period

Looking at GDP data, there is a long term trend upward. Much exciting research has been recently done in this area known as "growth economics". There is also occasional interruptions in the long run growth, known as recessions. These interruptions are addressed in business cycle theory and by Keynesian theory.

2. Rate of inflation - a measure of how much the economy is changing Looking at GDP data, there is a long term trend upward. Much exciting research has been recently done in this area known as "growth economics". There is also occasional interruptions in the long run growth, known as recessions. These interruptions are addressed in business cycle theory and by Keynesian theory.

There is a correlation between an economies GDP and its rate of inflation

3. Rate of unemployment - increases rapidly during recessions. Human cost to the business cycle. Avoiding recessions, is something governments can do to avoid the large scale human loss during economic recessions, as the human cost to unemployment can be huge.

Models

Models provide a key way to provide testable hypotheses which can be applied toreal world data to give us an insight as to the validity of a model. models can simplify abstract concepts and allow us to

Public Policy

A central tenant of economics is that markets under ideal conditions allocate resources efficiently. Where the markets dont allocat efficiently, there is a place for policy to adjust the market such as an optimal allocation is achieved.

Central banks are responsible for the monetaryt policy of and economy.

Types of Policy:

- Monetary Policy: The setting or influencing of financial variables by a nations central bank to manage aggregate soending the short to medium term
- Fiscal Policy: The setting of government budgetary variables - expenditure, taxations and public debt

The aims of macroeconomic policy:

- Rising living standards
- Avoiding extremes of macroeconomic performance
- Maintaining the real value of currency
- Ensuring sustainiable levels of public and private debt
- Balancing current expenditure against the need to provide resources for the future
- Providing employment for all individuals seeking work

Links

http://databank.worldbank.org/data/home.aspx

Gross Domestic Product

An important metric economists use to quantify the size of an economy. Many aspects of the macro economy can be described using GDP

Definition

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Measures the flow of economic activity in a geographic region (usually a country)
over a particular period of time
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Flow: A quantity which is changing, transient. Ex: income earned each week.

Stock: a variable defined at a particular point in time. Ex: savings in a bank account

- Flows build up stock.

What is Economic Activity?

Not a simple question, there are 3 distinct way to think about economic activity.

1. Production The flow of goods and services produced in and economy over a time period
2. Expenditure The flow of spending undertaken in the economy over a given time period
3. Income The flow of income earned in an economy over a time period

Amazingly, all 3 forms turn out to be identical. Measuring economic activity from any of the 3 forms results in an identical result.

Flow of Production

Taking a simple 2 stage production. 2 firms. Firm 1 produces an intermediate good.

The factors of production for Firm 1 is labour and capital.

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Labour:     The workers producing the good
Capital:    All money needed to keep production running
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Firm 2 has its own factors of production; labour, capital, and intermediate good 1. Firm 2 produces a final good.

If all flows were measured at all stages, there will be a double counting problem with any intermediate goods. The price of the final good already reflects the cost of the intermediate good.

Ex: Production of loaf of bread

Stage of Production	Value of Sales	Value of Int Goods ($)	Value Added at the Stage
wheat	1.80	0	1.80
flour	3.00	1.80	1.20
dough	4.00	3.00	1.00
bread	4.40	4.00	0.40
		Total	4.40

GDP is the sum of the value added. It is also the value of sales of the final good.

Flow of Expenditure

Must be precise as to the type of expenditure. There are 2 types of expenditure;

1. Consumption - Expenditures on final goods and services. Made to meet an immediate need. Known as consumption
    - Households - Consumption expenditure on nondurables
        - domestic
        - import
    - Government
        - domestic
        - imports
    - Foreigners
        - Exports
2. Investment - expenditure made on durable goods and services.
    - Households

    - domestic
    - imports
- Firms
    - Plant and equipment
    - Inventory of unsold stock
    - domestic
    - imports
- Government
    - domestic
    - imports

Assumptions

Assumptions made in models are not intended to reflect reality. They are intended to aid in working with the model.

1. Firms are the only sector that engages in investment
2. Households are the only sector that purchases imports

Flow of Income

Firms

Firms pay out a proportion of sales as wages, interest, rent, dividends and tax. The rest is retained earnings + allowance for depreciation. This is known as business saving.

Households

Receives wages interest rent dividends. A proportion of household income is used for consumption, the rest is household savings and to pay taxes.

Government

Recieves tax from firms and households. Spends via government expenditure. Government savings = Taxes - Expenditure If government savings > 0, then there is a budget surplus. If < 0 then budget deficit.

National Income Accounting

Keeping track of economic flow in an economy.

The value of production over a period can be domestic or sold as exports

Expenditure Form

- Y is the GDP of the economy
- C^d is the household consumption
- G is the government expenditure
- I is the firm investment
- X is the exports to other economies

$$Y = C^d + G + I + X$$

Income Form

- S^b is business saving
- M is the imports purchased by households
- S^h is the household saving
- T is the tax payments

$$Y = S^b + C^d + M + S^h + T = C + M + S + T$$

Result

As all forms of GDP are equivalent, the equations can be rearranged

$$C^d + G + I + X = C^d + M + S + T$$
$$I = (M - X) + (T - G) + S$$

This relates the total investment to the difference between imports and exports and the budget surplus/deficit.

Define National Saving, NS:

$$NS = S + (T - G)$$

investment becomes

$$I = (M - X) + NS$$

This relates the import surplus/deficit and the amount of national saving to the investment. Interesting to note that when there is a trade deficit, then investment is higher than national savings. This correlates well with data.

Refinements

There are some refinements to the concept of GDP which need to be discussed. First refinement has to do with measurement issue. This is an important issue in economics.

Example. Assume there are only 2 commodities: cheese and wine. Taking the expenditure GDP

Commodity	Variable	2009	2010	2011	2012
Cheese	q p (val) q p	100 15	105 16	108 18	112 20
Cheese (kilos)	(val) []	1500 25	1680 30	1944 38	2240 50
Wine Wine		22 550	20 600	16 608	12 600
(L) Total		2050	2280	2552	2840
GDP					

In this way, the total GDP is called the *nominal GDP*. This is the sum of the current price times the current quantity. We are using the current prices to weight the commodities each year. This price based weighting can also be thought of as the *social value* of the good, if the economy is in a market economy. Resources that are valued highly in a society, receive a high price, and thus are weighted heavier the calculation of GDP. This is a core belief in market economies.

National GDP - A Potential Problem

In many cases, in time, the quantity sold of a good goes up and the price goes down. This trends the nominal GDP in an unpredictable way. If the prices are falling faster than the increase in quantity, then the nom. GDP decreases in time. If the nom. GDP is falling in time, one cannot infer that it is because of the quantity increasing or the price decreasing. Thus, it is useful to use a different concept for GDP, the *Real GDP*.

1. Declare a base period, usually a year
2. Value the quantity of goods in relation to the fixed base price.

3. Future quantities are multiplied by this base price to get a new measure of GDP.

Thus, prices are fixed at this beginning period, and the time dependant quantity are tracked.

One problem with real GDP. When we use this base period prices, and we use the prices to value the goods and services those periods, we are freezing those weights at the base price. This assumes a fixed social value for the good in time. This, in particular, does not happen. Solution to this is what is called a *chain volume index*. This moves the base price forward each year. Thus the real GDP is in reference to last years prices.

Unsold Inventory

There is a dependance between production and sales. This does not always happen, there is often unsold goods, stored as inventory. This is not as big as problem as one may think. We can look at the unsold inventories as a firm investment, to meet an increase in demand in the future.

Change in inventories is the difference between production and expenditure, this gets added to a firms investment, I.

Now, the relation still holds:

$$P = E + I$$

National Income Accounting Identitiy

That is, production, expenditure, and income are all equal measures of the GDP.

There are distinct sectors in an economy.

1. Household
   - $C^d + M$
2. Firms
   - I: plant,equipment, inventory investment
3. Government
   - G: gov. expenditure
4. Foreign Sector
   - X: exports

The financial crisis in 2009 was characterized by a sharp drop in GDP growth.

The economics of happiness

There is a large amount of research being done on the economics of people's happiness. There is data supporting the evidence that there is little to no correlation in a nations GDP and the overall happiness of the citizens. In some cases, such as East Germany just after the fall of the wall, there was a correlation between real income and overall well i being as polled from citizens.