Introduction to Macroeconomics II

Financial Programming and Policies
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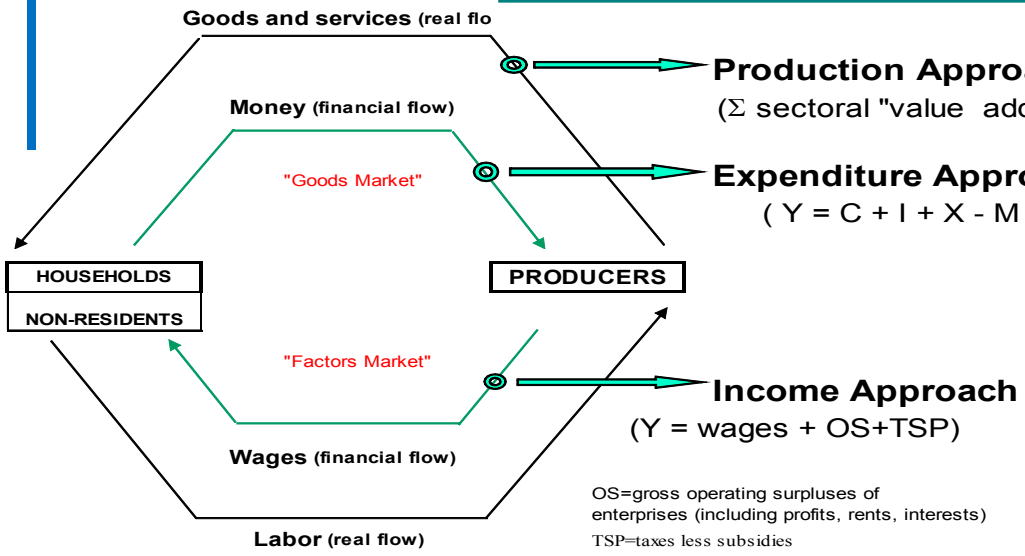
Outline

I. **Circularity of Income and Spending**

II. Income-Expenditure Framework

Circularity of Income & Spending

Circularity of flows is central to National Accounts: Estimate of GDP



Exercise on Circularity of Income & Spending

Let's simulate an economy with 3 sectors:

- Imagine each sector consists of one family business (so we do not have to deal with wages!)
- There is no government either (so we don't have to deal with taxes and government spending)
- The first sector / family business is rice farming:

Exercise on Circularity of Income & Spending

Let's simulate an economy with 3 sectors:

- The second sector / family business is fishing:

Exercise on Circularity of Income & Spending

Let's simulate an economy with 3 sectors:

- The third sector / family business is running a restaurant, which essentially processes the food grown or fished by the other two families:

Exercise on Circularity of Income & Spending

Simulation will follow these steps:

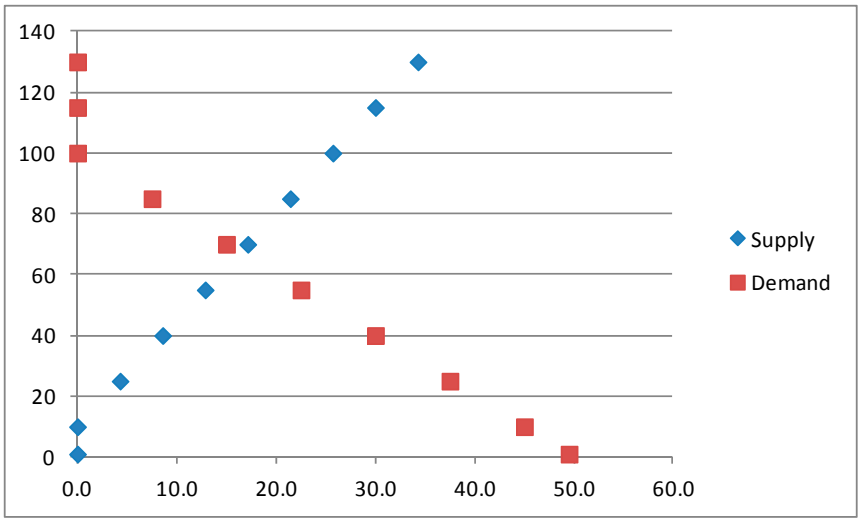
- We will hold three auctions that will determine demand/supply as well as the price of rice, fish, and restaurant meals:
  - ✓ Rice market: restaurant owner will buy rice from rice farmer
  - ✓ Fish market: restaurant owner will buy fish from fishermen/women
  - ✓ Restaurant market: rice-farming and fishing families will buy meals from the restaurant
- We will keep track of
  - ✓ Market-clearing prices and quantities
  - ✓ Income and spending of each family (and the change in their savings)
  - ✓ Economic output (GDP) of this three-sector economy

Exercise on Circularity of Income & Spending

Baseline simulation:

You will learn

- Supply and demand schedules
- Role of prices for equilibrating demand and supply
- Spending of one sector is income of another



Exercise on Circularity of Income & Spending

Simulation of a crisis situation:

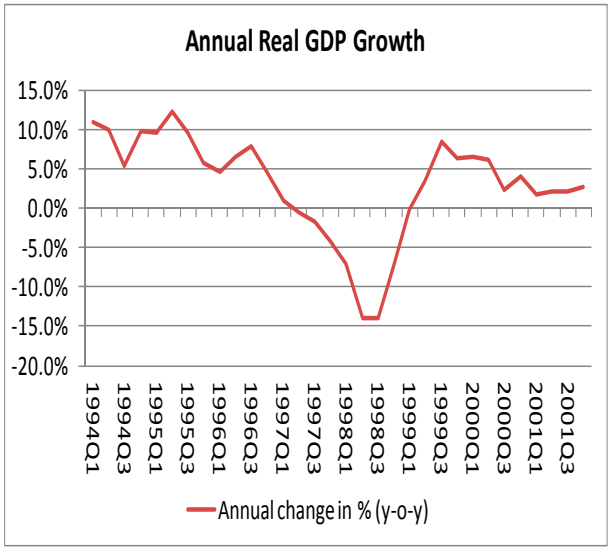
Assume a situation where a housing or stock market crash has wiped out part of the wealth of households (the precise cause does not matter!) and households want to rebuild their wealth by increasing their savings. We will simulate this situation by assuming that all of our three sectors reduce their spending simultaneously in order to save more. You will learn:

- The simultaneous reduction in spending leads to a fall in income for all three sectors
- GDP declines
- None of the sectors succeeds in increasing their savings

Exercise on Circularity of Income & Spending

This mechanism is central to understand the sharp drop in Thailand's GDP during the crisis:

- You will have to think about macroeconomic policies that can limit the output drop when you develop an alternative policy scenario next week
- To do so, it is useful to have a better understanding of aggregate demand and supply …
- … and especially the role of macroeconomic policies in stabilizing demand



Outline

I. Circularity of Income and Spending

II. Income-Expenditure Framework

Income-Expenditure Framework

In the short run, the level of real GDP is determined by the level of aggregate demand:

- The level of aggregate demand is determined by the level of expenditures [E] by domestic households, businesses and foreigners
- In the short run, businesses can't adjust their prices [prices are sticky] and have to meet demand at prevailing prices, which means production and, hence, economy-wide output [Y] has to be adjusted in line with demand conditions:

$$Y = E$$

- Given the circularity of income and spending, the level of expenditures also determines the level of incomes
- The income-expenditure framework is a useful tool for analyzing expenditure (and therefore aggregate demand) levels in the economy

Income-Expenditure Framework

Four components of spending:

- Consumption spending by households [C]
- Investment (spending by corporations building plant and installing equipment and purchasing inventories) [I]
- Government purchases (taxes and transfer payments don't count) [G]
- Net-exports (exports minus imports) [NX]

These all add up to total spending E: C + I + G + NX = E

In equilibrium, this is the same as total incomes or GDP Y: E = Y

Income-Expenditure Framework

Behind the scenes:

- Behind decisions to spend are:
  - ✓ Incomes
  - ✓ Desires to save—deleverage—or dis-save—leverage up
  - ✓ Desires to build up or spend down money balances
- Intermediate goods and services don't count
- In equilibrium: Expenditure = Income = Factor Payments = Receipts

Income-Expenditure Framework

Who does what?

C + I + G + NX = E

- C: households → depends on taxes T, income Y, wealth W, expectations
- I: businesses → depends on real interest rates r, capacity utilization, current profits, expected future profits
- G: government → fiscal policy
- NX:
  - ✓ Exports: foreigners → depends on exchange rate—value of home currency—and foreign variables
  - ✓ Imports: domestic households & businesses → depends on exchange rate and income

Income-Expenditure Framework

Why does the income-expenditure framework look so much like the expenditure approach to measuring GDP in the national accounts?

- Dividing planned expenditures into consumption [C], investment [I], government purchases [G] and net exports [NX] is useful because each of these expenditures is determined by a different group of people acting on different motives, and so planned expenditures on each can and should be analyzed separately
- The expenditure approach to measuring GDP in the national accounts was designed to facilitate this analysis—that is, it is based on the income-expenditure framework

Income-Expenditure Framework

Role of interest rates for expenditures:

What tends to happen to planned expenditure E when the real interest rate r goes up?

A. It tends to rise.

B. It tends to fall.

C. You can't make general statements.

D. Investment spending tends to rise, but government purchases tend to fall because taxes are cut.

E. None of the above.

Outlook

Next up:

- We will take a closer look at
  - ✓ role of interest rates for aggregate demand
  - ✓ aggregate supply
  - ✓ the link between aggregate demand, supply and inflation