Chapter 5

A Closed-Economy One-Period Macroeconomic Model

Plan

Build a MACRO MODEL

Specs:

- Closed Economy (i.e., no foreign trade)

Agents:

- Representative Consumer (Chapter 4)
- Representative Firm (Chapter 4)
- Government (Chapter 5)

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Government

- Purchase consumption goods G.
- Finance purchase using Taxes T.

Captures the idea that government spending uses up resources from the private sector (assumption).

For the moment, forget public goods.

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Government Constraint

- G is exogenous
- Simply, someone stands up (outside the model) and decides on how much G will be. For example, see the state of the Union address. We do not model G. We do not ask questions such as: which variable is influential to G? which variable, if changed, will subsequently change G? Poly-Sci ask these questions.
- In Economics, G is given to us, outside the model.
- ***Government Constraint***

$$G = T$$

Slide 4

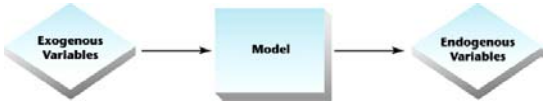
Fiscal Policy

Refers to gov' choices over:

- Expenditures (G)
- Taxes (T) ← here must equal G "WHY?"
  Exlpain what will happen if $T > G$ or $T < G$
- Transfers ← no production, not part of GDP
- Borrowing ← here gov' can't borrow "WHY?"

Slide 5

Figure 5-1 A Model Takes Exogenous Variables and Determines Endogenous Variables



G, z, K

C , N^s, N^d

T, Y and w

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MODEL

- Behavior: Consumer, Firm and Government.
- Consistency: given market prices, demand equals supply in each market in the economy. Market Clearing.

The actions of the agents must be consistent.

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COMPETITIVE EQUILIBRIUM

COMPETITIVE **EQUILIBRIUM**

Agents are price-takers.

Economy is in equilibrium, when the actions are consistent. Markets clear.

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The CE for this economy

A CE is:

- a set of endogenous quantities: C, N^s, N^d, T and Y
- and endogenous real wage w, such that
- Given the exogenous variables G, z and k,

The following is satisfied

- The consumer max U s/c budget
- The firm max profits s/c technology
- The labor market clears $N^s = N^d$
- The government budget is satisfied.

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In General

A CE is:

- A set of endogenous quantities …
- and endogenous prices … such that
- Given a set of exogenous variables …

The following is satisfied

- Agents follow an optimizing behavior
- All markets clear and constraints are satisfied.

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Show why the Income-Expenditure identity holds in equilibrium?

Start with the consumer's budget

$C = wN^s + \pi - T$

In Equilibrium, $\pi = Y - wN^d$ (from the firm)

Also, $G = T$ (from the gov)

Therefore $C = wN^s + Y - wN^d - G$

Now, add Labor market clearing $N^s = N^d$

Which gives $Y = C + G$

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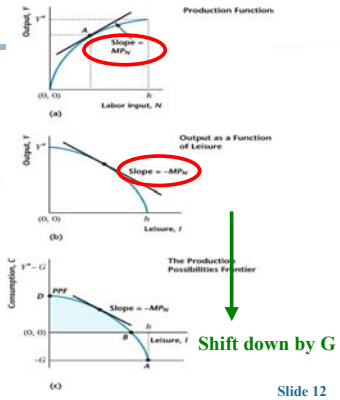
Figure 5-2 The Production Function

$Y = z\,F(K,N)$

Keep Track of changes in the labels of the Y-Axis and the X-Axis

Y as function of Leisure

$Y = z\,F(K, h-l)$



PPF

Since C = Y – G then

$C = z\,F(K, h-l) - G$

Shift down by G

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Figure 5-3 Competitive Equilibrium

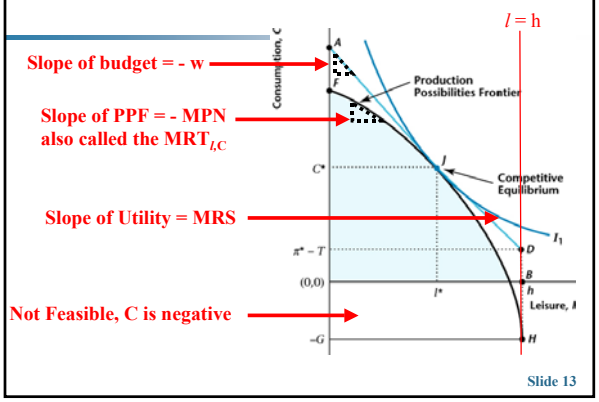

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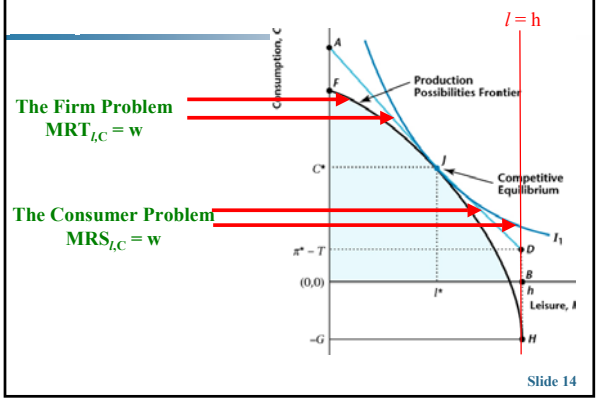
Figure 5-3 Competitive Equilibrium



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