General Framework - Circular Flow

1. Key Markets and interactions

* *Factor markets*: labor, capital, raw materials I
* *Goods markets*: consumption, investment, export, import, gov III
* *Financial Asset markets*: money, credit, equities IV
* *Income Transfers* among sectors II

Diagram shows 2 directional flows: Payment ($) and Good or Service

1. Key actors, assumptions, and decisions

a. **Households** - max utility subject to an income constraint

- supply labor and savings (Ls and Sp)

- purchase goods C

- manage a portfolio (Money , Bonds, and Equities)

* 1. **Businesses** - act as a conduit/partnership for shareholders

- seek to maximize present discounted value of profits

- hire factors - labor, raw materials, capital equipment

- produce goods - C, I, G, and X

- finance projects with retained earnings, bonds, or equities

Essentially, obtain resources from household sector and return income to household

* 1. **Governments** (all levels)

- buy goods G

- design and administer transfers F

- finance activities - tax, bonds, or money

* 1. **Financial institutions**

- hold securities, place deposits at Fed, have cash

- hold deposits for a - c

- disburse funds to households and businesses

- generate income (not central to our macro discussion)

* 1. **Central Bank**

- hold Bg and foreign exchange

- receive deposits from financial institutions

- put money in circulation through monetary policy

- act as bank for government and for large commercial banks

- Section 13(3) of the Federal Reserve Act – make loans

- treat Central Bank as an independent part of Federal government

* 1. **Rest of the World** - NX = X - Im

- another sector similar to household sector

- purchase goods and services

- provide goods and services

- provide capital Sf = Im - X - capital inflows

US is a net borrower from the rest of the world

1. **Accounting Identities**

* **Income Expenditures Identity** ( Flow identity)

Sources Uses

Y = C + I + G + X + R\*Bg + F = C + Sp + T + Im

Terms can be resorted to yield interesting pairs

(Sp - I) + (T - G - R\*Bg - F) + (Im - X) = 0 → Sp + Sg + Sf = I

private credit govt. budget trade balance

* **Balance Sheet Identity**

Assets - Liabilities = New Worth (stock identity)

Can write as flow identity with change in each : Δ NW = Sp

**Financing constraints** (Flow of funds)

HH: Sp = Y + net factor payments from abroad + transfers - taxes - C

= ΔM + Δ Bg + ΔV(equities)

P P P

Bus: Sb = profits - depreciation - dividends - taxes: (retained earnings)

I = ΔK = Sb + external finance (bonds and equities)

Govt: Sg = T - G - R\*Bg - F = - (ΔM + ΔBg)

Let T = net taxes = T - R\*Bg - F for simplicity

**Governmental Budget Constraint**

Key all governmental expenditures must be paid for:

G = T + ΔM + ΔBg

P P

National Savings: Sp + Sg = Y + NFP- C - G where NFP=Net Foreign Profits

Walras’ Law: If all markets but one clear, then that market must also clear. If one market features excess demand, then another must feature excess supply.

If Y > C + T + Im (output exceeds demand) then S >0 and can be put into financial assets (supply of funds exceeds demand of funds)

[Md - Ms] + [ Bd - Bs] + [Vd - Vs] = 0

Walras’ Law says we need only analyze all markets but one since the status of that last market can be determined from the above equilibrium condition.