

3. National Income and Equilibrium Determination (Part 1)

EE 212

Case & Fair, ch. 8; LCR, ch. 23-24

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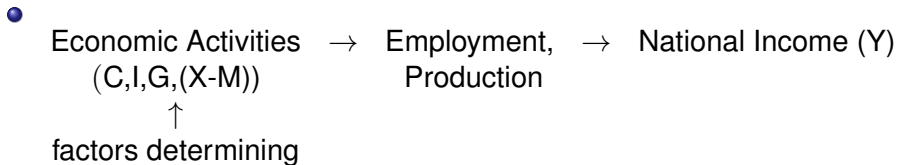
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1. Introduction

- Leakages :
- Injections :
- Expenditure Approach : $GDP = \dots\dots\dots$
- (Assuming no depreciation, no indirect tax : $GNP = NNP = NI$)
- Real GDP VS. Nominal GDP

- Assumption : Price is constant
- $Y = C + I + G + (X-M)$

- Potential Y = the total output that can be produced when all productive resources - labour and capital equipment in particular- are being used at their
- Actual Y is not always equal to Potential Y .
- Output Gap =



- What are the factors determining Y ?
- How is the equilibrium Y determined?

- $Y = \dots\dots\dots$
- The theory of national income : Desired Aggregate Expenditure (DAE)
- $DAE = \dots\dots\dots$
- “Desired” , “Planned” does not refer to what people would like to do under imaginary circumstances; it refers to what people would like to spend out of resources that are at their command

- National Income Accounts measure expenditures in each of the four categories.
- National Income Theory deals with expenditures in each of the four categories.

2.1 Desired aggregate consumption and consumption theories (C)

Desired consumption expenditures (C) : the expense households paid to consume goods and services

Outline

2.1.1 Consumption theories

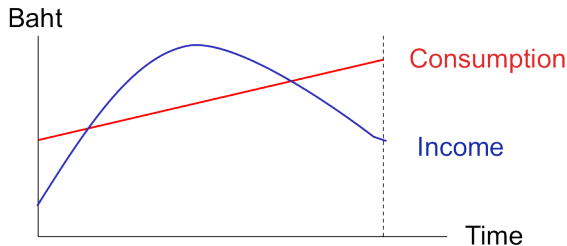
2.1.2 The Absolute Income Theory : Consumption Function and Saving Function

2.1.3 The Absolute Income Theory : APC, MPC, MPS, APS Relationship

2.1.4 Move Along vs. Shift in Consumption and Saving Curve

2.1.1 Consumption Theories

- The absolute income theory
- The relative income theory
- The permanent income theory : developed by Milton Friedman
 - $Y = \text{Permanent Income} + \text{Temporary Income}$
 - $C = \text{Permanent Consumption} + \text{Temporary Consumption}$
- The life-cycle theory



2.1.2 Consumption Function and Saving Function

The Absolute Income Theory, Keynes Consumption Theory :

- Disposable Income (.....) ;=.....
- Households will divide their disposable income into two parts ; and
- Factors determining aggregate consumption
 - Disposable Income (.....)
 - Consumer Credit and Interest Rate
 - Consumer's Wealth
 - Consumer's Debt
 - Consumer's Expectation
 - Consumer's Taste
 - The number of Population and Age Structure
 - Income Distribution
 - Others ; for example, education

- $C = f(Y_d, \text{other factors determining aggregate consumption})$
- $S = \dots\dots\dots$
- Relationship between Consumption and Income
 - $Y_d \uparrow, C \dots\dots$
 - As $Y_d \uparrow$ by 1 unit, $C \dots\dots$ by $\dots\dots\dots$ 1 unit.
 - $Y_d \uparrow$, proportion of consumption to disposable income
 $\left(\frac{C}{Y_d}\right) \dots\dots\dots$

- Consumption function

$$C = C_0 + bY_d,$$

where

C_0 is autonomous consumption expenditure

b is marginal propensity to consume (MPC)

Y_d is disposable income

APC = Average Propensity to Consume =

- Saving function

$$S =$$

$$=$$

$$=$$

where

..... is

..... is marginal propensity to (.....)

APS = Average Propensity to Save =

- Example : Consumption function, $C = 100 + 0.6Y_d$

- When $Y_d = C$
 - Consumption line 45° line
 - This implies that
 - Y_d at this point is called(.....)

- When $Y_d < \dots\dots\dots Y_d$
 - Consumption line is 45° line
 - $C \dots\dots\dots Y_d$
 - This is possible. How?
 - $S \dots\dots 0$
 - At $Y_d = 0$, $C = \dots\dots\dots$ which is

- When $Y_d > \dots\dots\dots Y_d$
 - Consumption line is 45° line
 - $C \dots\dots\dots Y_d$
 - $S \dots\dots 0$
 - $Y_d \uparrow$, $C \dots\dots\dots$, $S \dots\dots\dots$
 - This implies that

- Example : Saving function, $C = 100 + 0.6Y_d$,
S =

- When $S = 0$, $C = \dots\dots\dots$
 - It is the point where saving line $\dots\dots\dots$ horizontal axis.
 - Y_d at this point is called $\dots\dots\dots$ ($\dots\dots$)

- When $Y_d < \dots\dots\dots Y_d$
 - saving line is $\dots\dots\dots$ horizontal axis
 - $S \dots\dots\dots 0$
 - $C \dots\dots\dots Y_d$
 - This is possible. How?
 - At $Y_d = 0$, $S = \dots\dots\dots$

- When $Y_d > \dots\dots\dots Y_d$
 - saving line is $\dots\dots\dots$ horizontal axis
 - $S \dots\dots\dots 0$
 - $C \dots\dots\dots Y_d$
 - $Y_d \uparrow$, $C \dots\dots\dots$, $S \dots\dots\dots$

2.1.3 APC, MPC, MPS, APS Relationship

1. Relationship between APC and APS

$$Y_d = \dots + \dots$$

Therefore, $APC + APS = \dots$ always.

At $Y_d = Y_d^*$	$C \dots Y_d$	APC	APS
At $Y_d > Y_d^*$			
At $Y_d < Y_d^*$			

2. Relationship between MPC and MPS

$$Y_d = \dots + \dots$$

Therefore, $MPC + MPS = \dots$ always.

MPC and MPS are assumed to be

For all levels of Y , Y_d , $MPC = \dots$ and $MPS = \dots$

Hence, Consumption and Saving function are

3. Relationship between APC and MPC

MPC		
APC		$Y_d < Y_d^* : \text{APC} \dots\dots\dots$ $Y_d = Y_d^* : \text{APC} \dots\dots\dots$ $Y_d > Y_d^* : \text{APC} \dots\dots\dots$ $Y_d \uparrow \text{APC} \dots\dots\dots$

APC MPC

4. Relationship between APS and MPS

MPC		
APC		$Y_d < Y_d^* : \text{APS} \dots\dots\dots$ $Y_d = Y_d^* : \text{APS} \dots\dots\dots$ $Y_d > Y_d^* : \text{APS} \dots\dots\dots$ $Y_d \uparrow \text{APS} \dots\dots\dots$

APS MPS

2.1.4 Move Along vs. Shift in Consumption and Saving Curve

- Consumption and Saving : $C = 100 + 0.8Y_d$,
S =

- $Y_d \uparrow, C \dots\dots\dots \Rightarrow \dots\dots\dots$
- $Y_d \uparrow, S \dots\dots\dots \Rightarrow \dots\dots\dots$
- Change in any factors determining consumption (except Y_d)
 $\Rightarrow \dots\dots\dots$
- Change in any factors determining consumption (except Y_d)
 $\Rightarrow \dots\dots\dots$

- Suppose
 - interest rate for consumption loan ↓
 - expect disposable income to ↓

- $C = \dots\dots\dots$

	$Y_d < Y_d^*$	$Y_d = Y_d^*$	$Y_d > Y_d^*$
C			
S			
APC			
MPC			
APS			
MPS			

2.2 Desired aggregate investment expenditure (I)

- Investment : spending on
- Desired aggregate investment expenditure includes
 - Buildings
 - Machines
 - Δ inventories
 - Residential investment
 - Financial investment; example, investment in stocks, bonds

- Factor determining investment

- ① Real Interest Rate
- ② National Income
- ③ Change in Technology
- ④ Government Policy
- ⑤ Economic Stability
- ⑥ Others, for example, availability of bank credit

- Investment function :
 $I = f(Y, \text{ other factors determining investment})$
- $I = I_0 + dY,$
- where
 I_0 is autonomous investment
 d is marginal propensity to invest
- For example, $I = 100 + 0.2Y$

- Move along and shift in Investment curve
- An increase in Y
- An increase in real interest rate (r)

2.3 Desired Aggregate Government Expenditure (G)

- Factors determining desired aggregate government expenditure = government policy = fiscal policy
- Expansion fiscal policy : G
- Contraction fiscal policy : G
- Assuming that government expenditure does not depend on Y .
- $G = G_0$: for example, $G = 50$

- Shift and move along in government expenditure line

2.4 Desired aggregate net exports (X-M)

- Net export = Export - Import
- Factors determining

Export	Import
Income of	Income of
Demand from	Demand of
Price of (compared with)	Price of (compared with)
Exchange Rate	Exchange Rate
Political and Economic Stability	
Others: for example, government policy	Others: for example, government policy

- Export function and import function
- Export : $X = \dots\dots\dots$
- Import : $M = \dots\dots\dots$
- where,

- Shift and move along in Net Export line
- Government export promotion policy
- Demand from foreign country ↓

2.5 Desired Aggregate Expenditure (DAE)

- Suppose $T = 0$.
- DAE =

- Plot DAE on (Y, DAE) plane.

- Slope of DAE =
- Marginal Propensity to Spend
- The value of Marginal Propensity to Spend lies

- $T = T_0$
- DAE =