

# Definitions: Consumption / Savings Function

➤ **Consumption** expenditures (**C**) & **Savings** (**S**) depend on **disposable personal income** (**current aggregate output**)

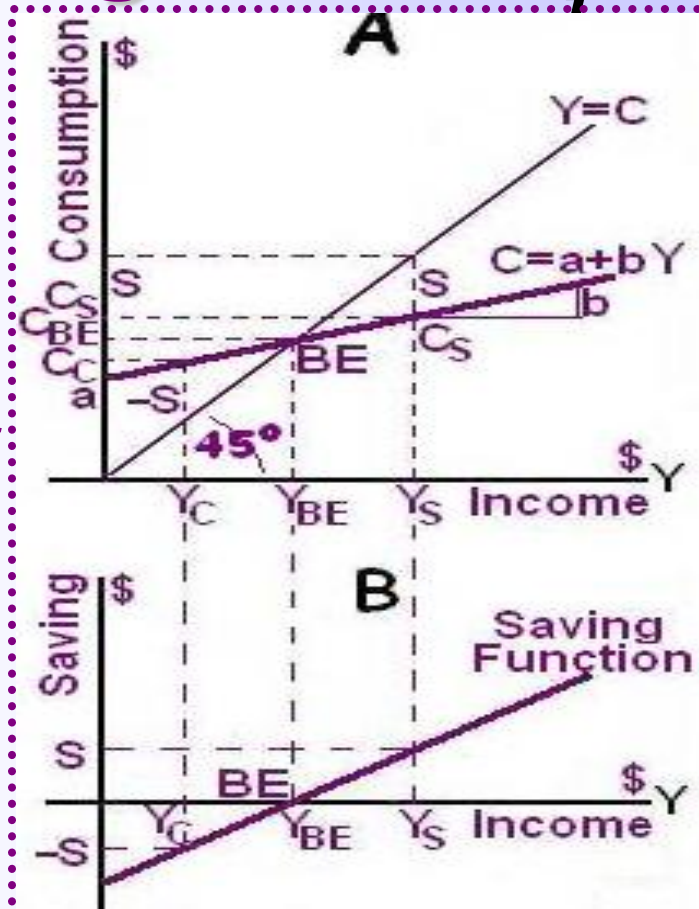
➤ **The consumption function** (**CF**) specifies that consumption (**C**) is a function of income (**Y**) and appears in the form:  **$C = a + b \cdot Y$**

➤ Two parameters show how **C** & **Y** are related:  
 ✓ the **intercept a**, called **autonomous consumption**, 0-income level of consumption

✓ the **slope b**, defined as the **marginal propensity to consume (MPC)**

➤ 45° line divides CF into: **saving, BE, dissaving**

➤ **The saving function** (**SF**) is the mirror image of the consumption function, because each dollar of disposable income is either saved or consumed ( **$Y = C + S$** )



➤ **Marginal Propensity to Consume (MPC)** – amount by which **consumption** rises when disposable personal income rises by one unit:  $\Rightarrow MPC = \Delta C / \Delta Y \Rightarrow 0 \leq MPC \leq 1$

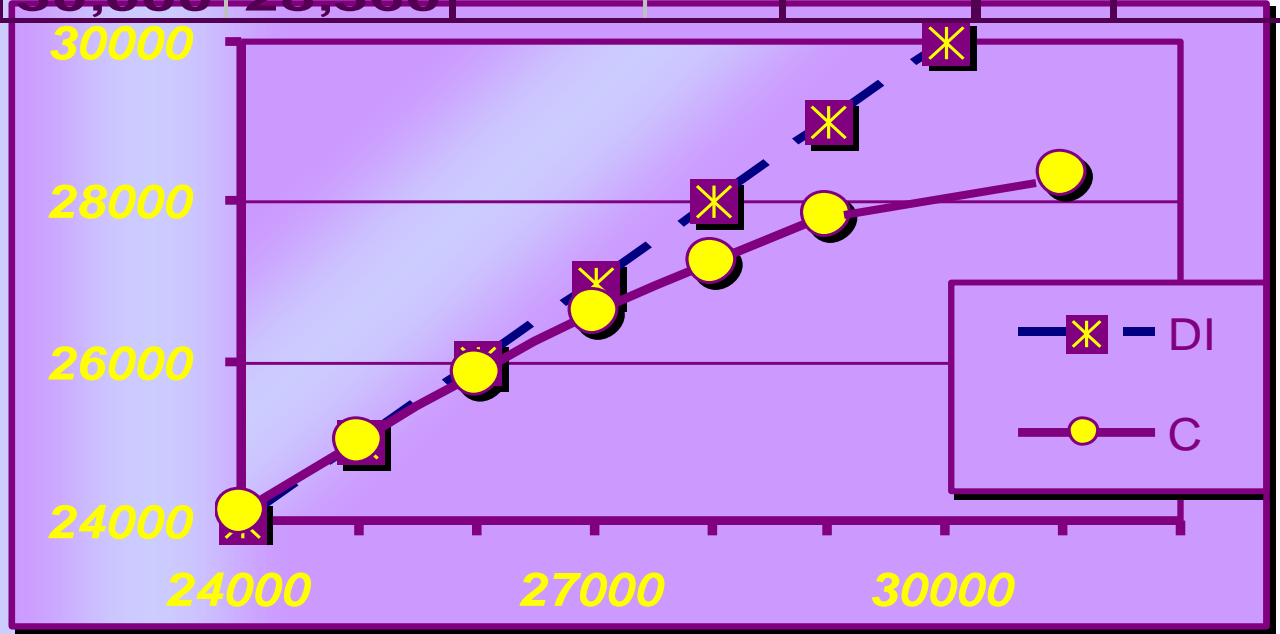
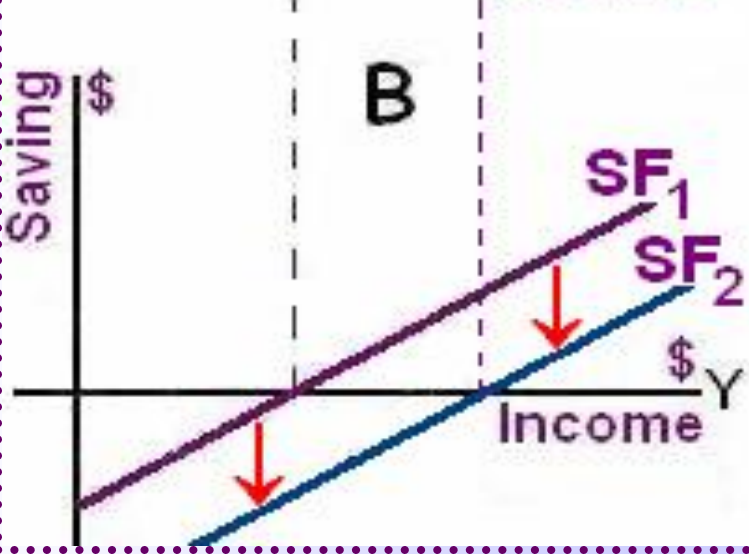
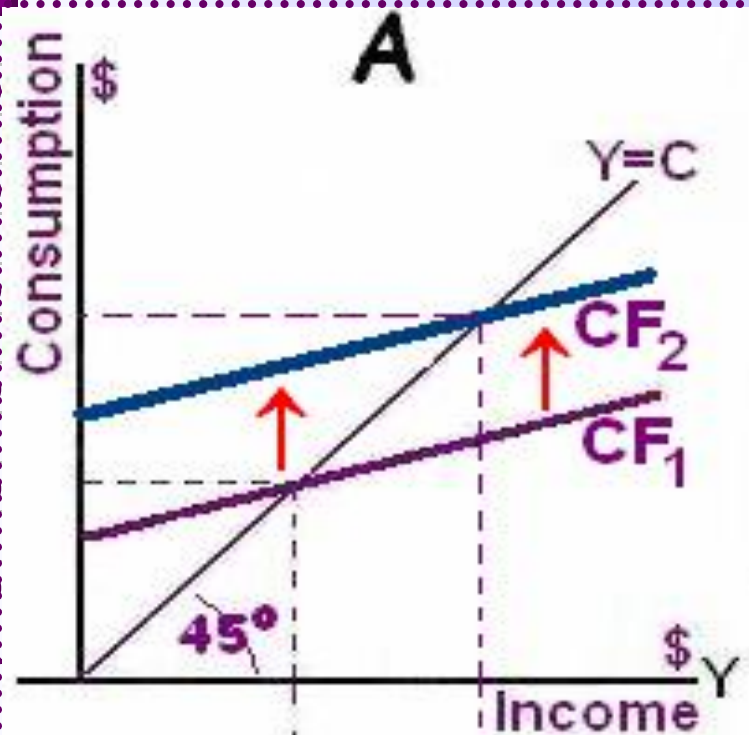
➤ **Marginal Propensity to Save (MPS)** – fraction of an extra \$ of **disposable income** that goes to extra **saving**  
 $\Rightarrow MPS = \Delta S / \Delta Y \Rightarrow 0 \leq MPS \leq 1 \Rightarrow MPS = 1 - MPC$

➤ **Average Propensity to Consume (APC):**  $APC = C / Y \Rightarrow 0 \leq APC \leq 1$

➤ **Average Propensity to Save (APS):**  $APS = S / Y \Rightarrow APS = 1 - APC$

# Example: MPC/MPS. Shifts of CF & SF

DI	C	$\Delta DI$	$\Delta C$	MPC	S	MPS
24,000	24,110					
		1,000	890	0.890	110	0.110
25,000	25,000					
		1,000	850	0.850	150	0.150
26,000	25,850					
		1,000	750	0.750	250	0.250
27,000	26,600					
		1,000	640	0.640	360	0.360
28,000	27,240					
		1,000	590	0.590	410	0.410
29,000	27,830					
		1,000	530	0.530	470	0.470
30,000	28,360					



# Determinants of $C$ , $S$ , & $I$

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## ➤ Wealth & Income

✓  $\uparrow$  Wealth  $\rightarrow \uparrow C, \uparrow S$

## ➤ Real Interest Rates

✓  $\uparrow r \rightarrow \downarrow C, \uparrow S$

## ➤ Wealth & Other

✓  $\uparrow$  Wealth  $\rightarrow \uparrow C, \downarrow S$

## ➤ Taxes

✓  $\uparrow T \rightarrow \downarrow C \rightarrow \uparrow S$

## ➤ Government Purchases

✓  $\uparrow G \rightarrow \uparrow C, \downarrow S$

## ➤ Revenues - Output (*accelerator principle*)

✓  $\uparrow Y \rightarrow \uparrow I$

## ➤ Costs - Real/Expected Interest Rate

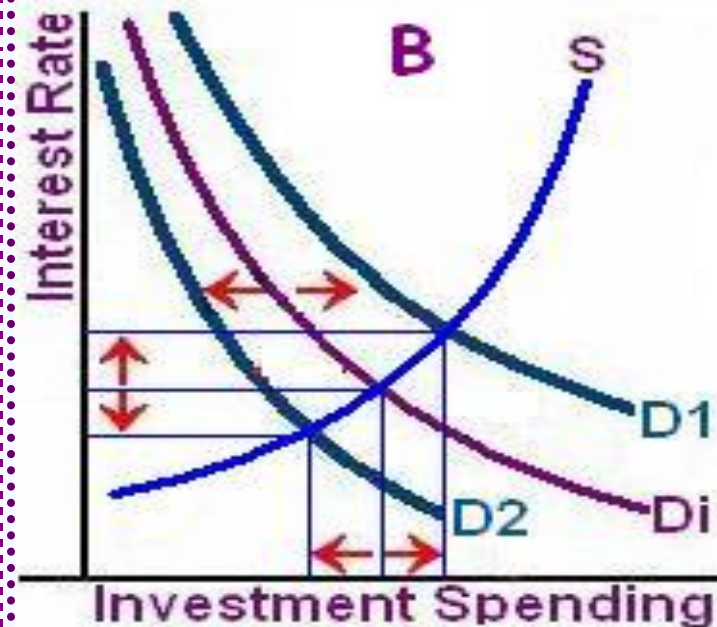
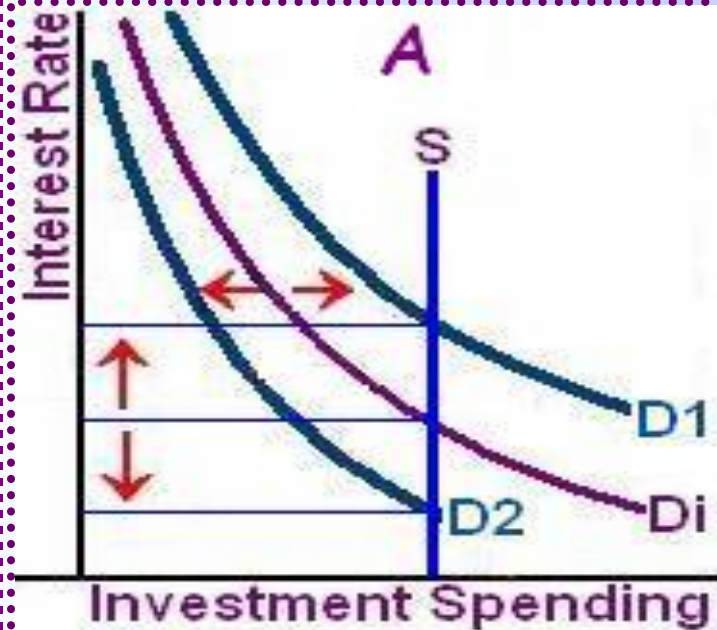
✓  $\uparrow r \rightarrow \uparrow$  user cost  $\rightarrow \downarrow I$

## ➤ Taxes (on capital income)

✓  $\uparrow T \rightarrow \uparrow$  tax-adjusted user cost  $\rightarrow \downarrow I$

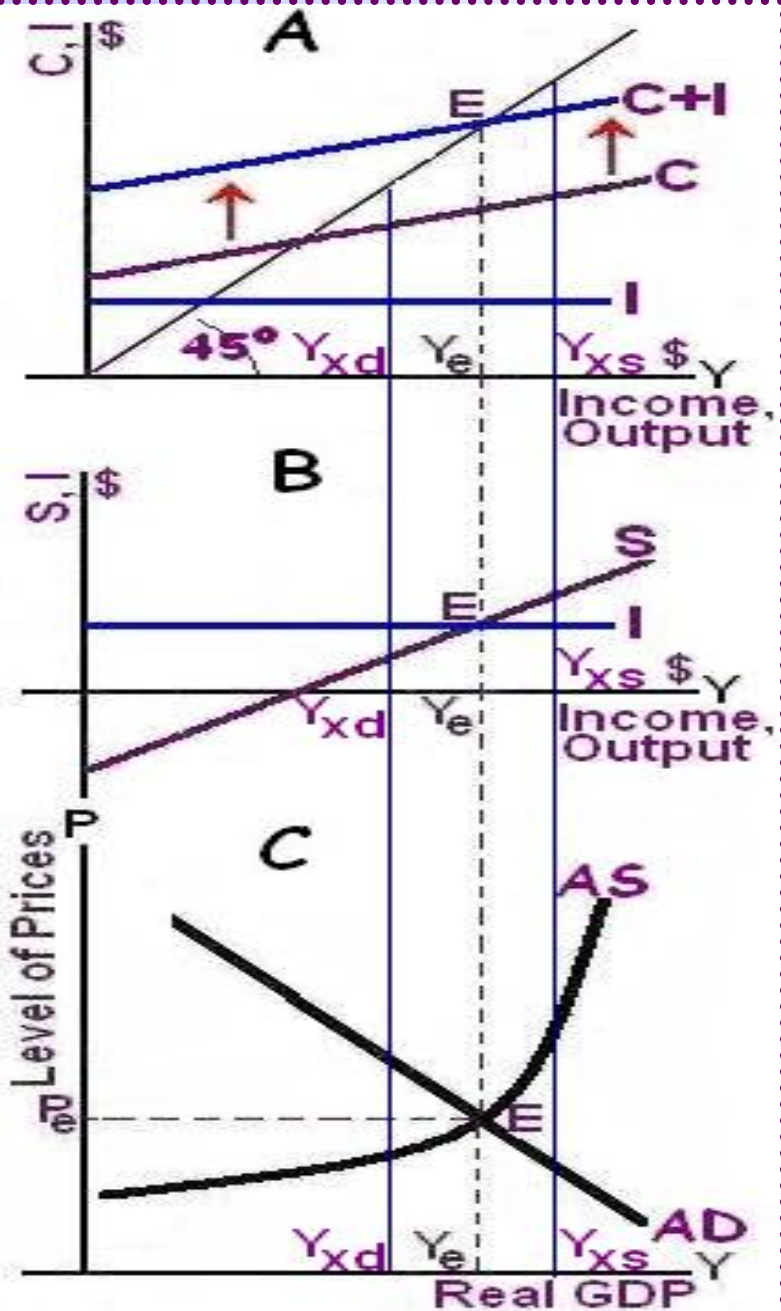
## ➤ Expectations:

✓  $\uparrow \downarrow$  Exp.  $\rightarrow \uparrow \downarrow I$



# Equilibrium: $Y$ Determination with $C, S$ & $I$

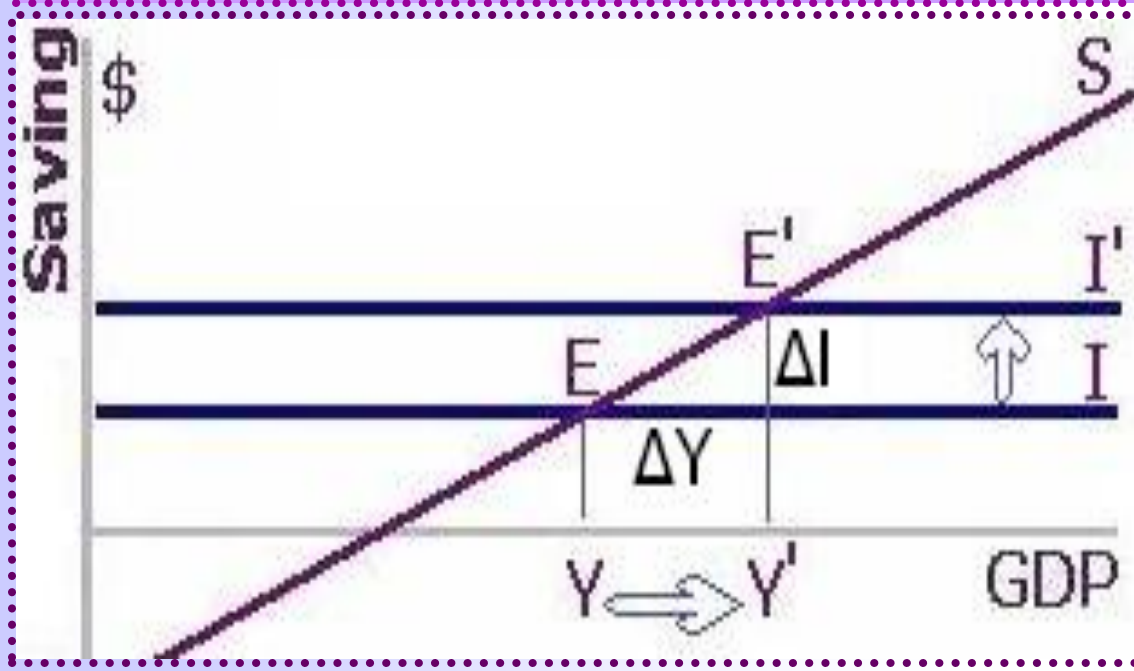
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- By **S&I**:
  - ✓ At  $E$ : firms' desired investment is equal to what households want to save;
  - ✓ Above  $E$ :  $S$  high,  $C$  low: less sales, firms overstock, production falls, layoffs  $\Rightarrow Y, C, S$  go down;
  - ✓ Below  $E$ :  $S$  low,  $C$  high: production rises, firms expand and hire, income increases  $\Rightarrow Y, C, S$  go up.
- By **C&I**:
  - ✓ At  $E$ : planned spending ( $C+I$ ) is equal to planned output;
  - ✓ Above  $E$ : Spending  $< Y$ : low sales, firms overstock, production falls, layoffs  $\Rightarrow Y, C, S$  go down;
  - ✓ Below  $E$ : Spending  $> Y$ : production rises, firms expand and hire, income increases  $\Rightarrow Y, C, S$  go up.

# Investment Multiplier

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	MPC=3/5		ΔSpending	
Grocer	10.0	6.0	= (3/5)*10=	6.0
Baker	6.0	3.6	= (3/5) <sup>2</sup> *10=	3.6
Miller	3.6	2.2	= (3/5) <sup>3</sup> *10=	2.2
Farmer	2.2	1.3	= (3/5) <sup>4</sup> *10=	1.3
...	...	...	...	...
		25.0	= (5/2)*10=	25.0

$Y = C + I \Rightarrow \Delta Y = \Delta C + \Delta I \Rightarrow \Delta I = \Delta Y - \Delta C$   
 $MPS = 1 - MPC$

$M = \frac{\Delta Y}{\Delta I} \Rightarrow \Delta Y = M * \Delta I$

$M = \frac{\Delta Y}{\Delta I} = \frac{\Delta Y}{\Delta Y - \Delta C} = \frac{1}{\frac{\Delta Y - \Delta C}{\Delta Y}} = \frac{1}{1 - \frac{\Delta C}{\Delta Y}} = \frac{1}{1 - MPC} = \frac{1}{MPS}$

# Key Concepts

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- ✓ *consumption & saving in national income*
- ✓ *consumption (slope, intercept, BE point, dissaving) & saving functions*
- ✓ *marginal & average propensities to consume & save*
- ✓ *shifts in consumption/saving functions*
- ✓ *determinants of consumption, saving, investment*
- ✓ *investment, determinants*
- ✓ *two ways of equilibrium GDP determination (C&I, S&I)*
- ✓ *investment multiplier*
- ✓ *multiplier & MPC/MPS*
- ✓ *fiscal policy in the multiplier model, government expenditure multiplier*

## **Course Web Support:**

- <http://www.skylinecollege.info/mosesov/macro/>
- <http://www.mhhe.com/economics/samuels17/students/Ch22.mhtml>
- <http://nova.umuc.edu/~black/consf1000.html>