

# ECONOMICS

for South African students

*Macroeconomics*

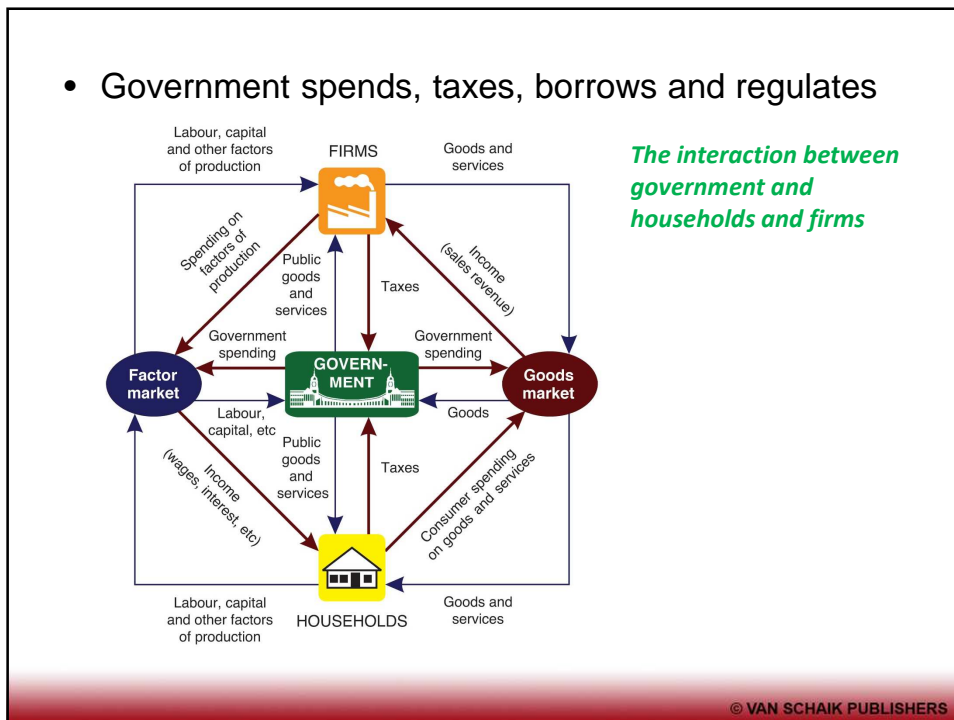
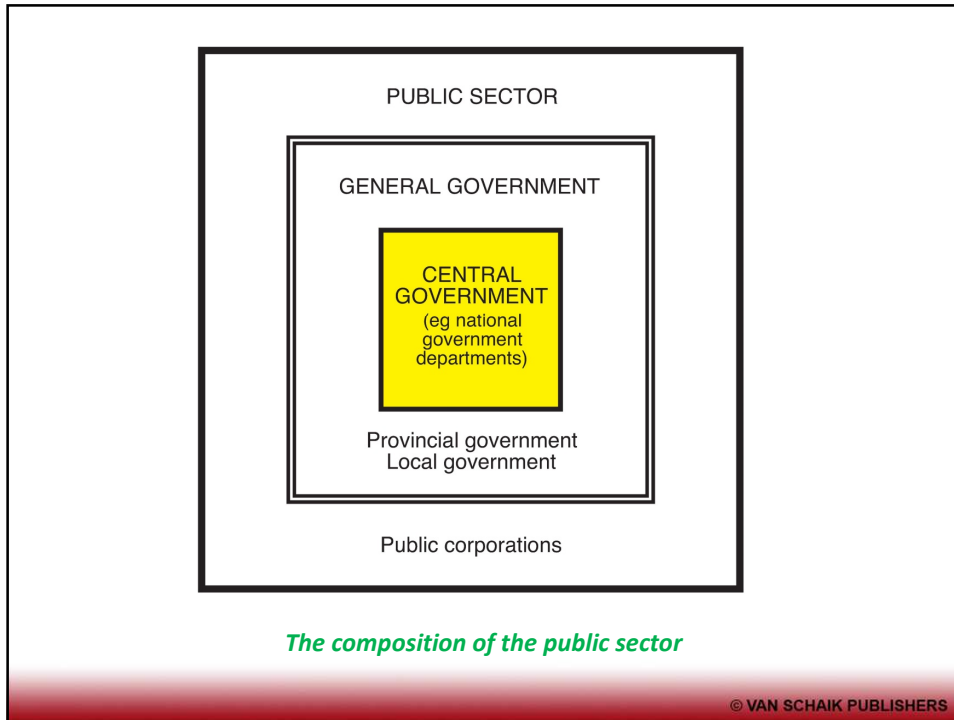
## The government and fiscal policy

### The government in the economy

- A. Central government
- B. Regional/provincial government
- C. Local government
- D. Public corporations

A + B + C = General government

A + B + C + D = Public sector



## Appropriate mix between government and the market?

- Private initiative and market forces are generally more efficient than government
- Government has to provide an appropriate environment (eg legal framework) in which market forces can operate
- Markets sometimes fail (market failure)

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- Markets produce **efficient** outcomes but not necessarily **equitable** outcomes
- Markets tend to generate macroeconomic **instability**

**Both government and the market  
therefore have a place**

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## Fiscal policy and the budget

- **Definition of fiscal policy:**
  - level and composition of
    - government spending
    - Taxation
    - government borrowing

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- **Budget as main instrument:**
  - reflection of political decisions
  - budget deficit/surplus
- **Demand management**
  - fiscal policy
  - monetary policy
  - expansionary (stimulatory) policy
  - contractionary (restrictive) policy

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- **Government spending financed by:**
  - income from property
  - taxes
  - borrowing
  
- **Borrowing (to finance budget deficit):**
  - domestic capital markets (government bonds)
  - international capital market (government bonds)
  - central bank (SARB) (inflationary financing)
  
- **Borrowing increases public debt and interest on public debt**

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## Taxation

- **What is a good tax?**
  - neutral
  - equitable
  - administratively simple
  
- **Equity**
  - ability to pay principle
    - horizontal equity
    - vertical equity
  - benefit principle

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### **Taxation: some important distinctions**

- Tax avoidance vs. tax evasion
- Direct taxes vs. indirect taxes
- Taxes on income and wealth vs. taxes on products and production
- General taxes vs. selective taxes
- Progressive, proportional and regressive taxes

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### **The three main taxes**

- **Personal income tax**
  - taxable income (tax base)
  - marginal tax rate and average (or effective) tax rate
  - progressive tax
  - includes capital gains tax

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- **Company tax**
  - company profits (tax base)
  - proportional tax
- **Value-added tax**
  - indirect tax
  - regressive tax

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## Government in the Keynesian model

- **Impact of  $G$  and  $T$  on:**
  - aggregate spending  $A$
  - multiplier  $\alpha$
  - equilibrium income  $Y$
- **Impact of fiscal policy**
  - changes in  $G$  and  $T$

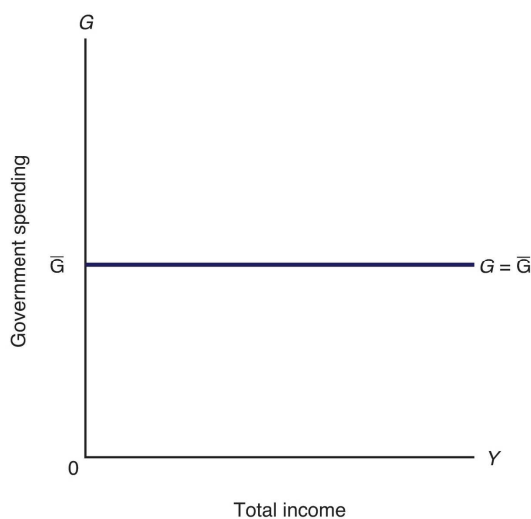
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## Government spending ( $G$ )

- Essentially a political issue
- Not systematically related to  $Y$
- Regarded as exogenous/autonomous wrt  $Y$
- Introduction of  $G$  thus:
  - Raises aggregate spending  $A$
  - Leaves multiplier  $\alpha$  unchanged
  - Raises equilibrium level of income  $Y_0$

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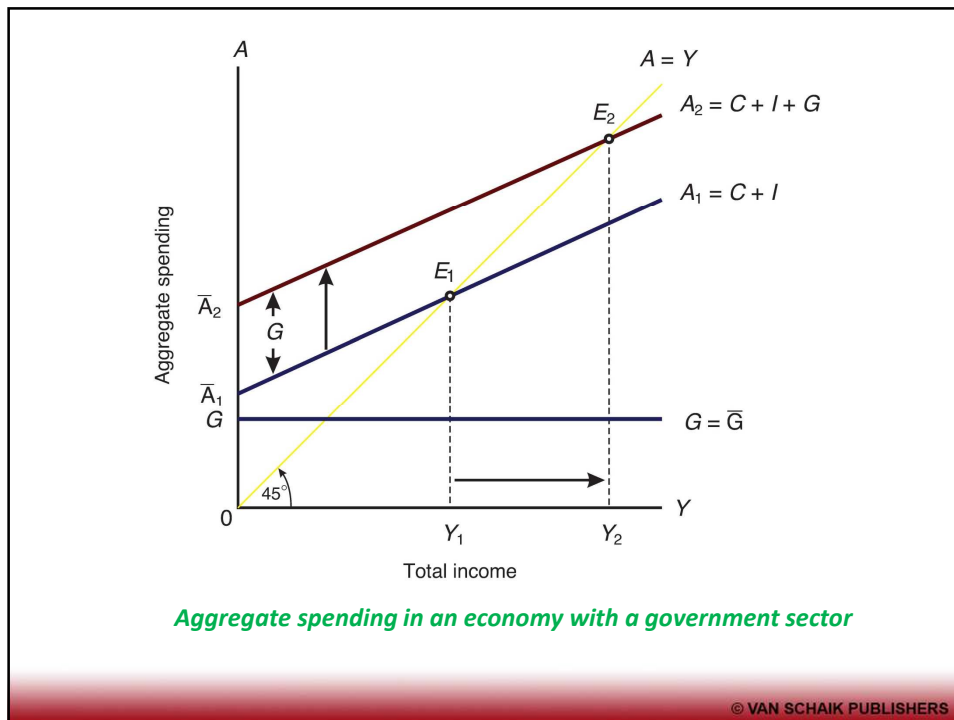
- $G = \bar{G}$



*Government spending*

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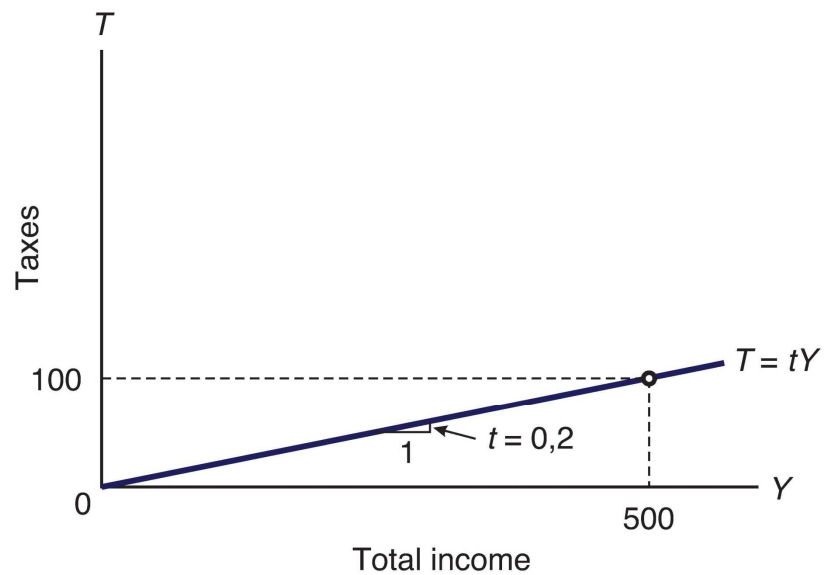


## Taxes ( $T$ )

- Taxes  $T$  constitute leakage or withdrawal from circular flow
- Reduce disposable income  $Y_d$ , where  $Y_d = Y - T$
- Taxes are related to income:  $T = tY$
- Taxes reduce consumption  $C$  indirectly (because they reduce  $Y_d$ )

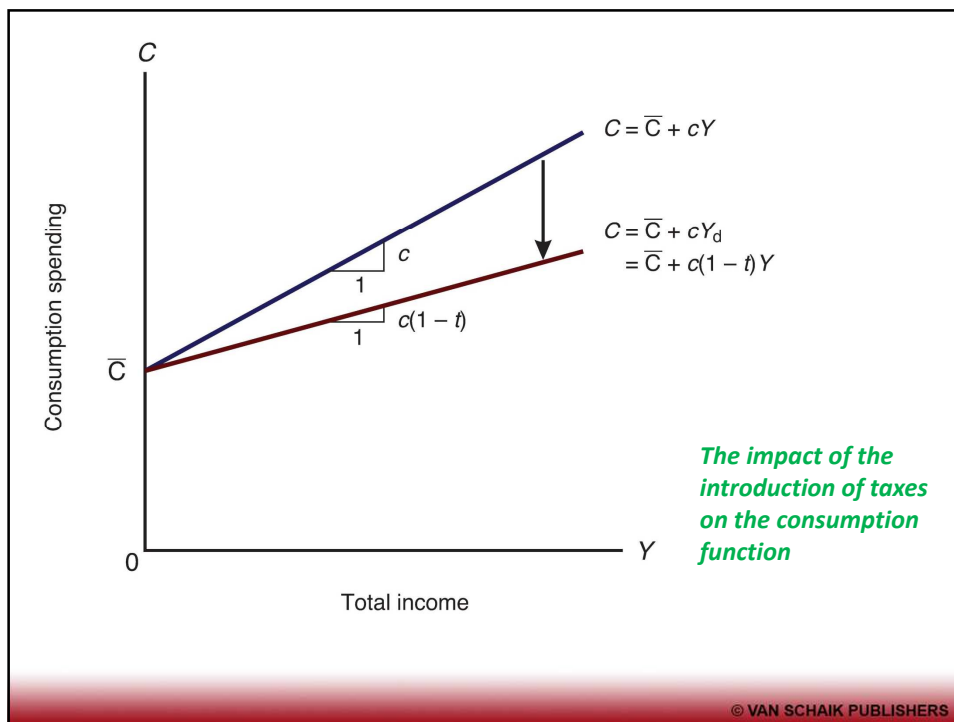
- Introduction of  $T$  thus:
  - Does not impact directly on aggregate spending  $A$
  - Reduces multiplier  $\alpha$
  - Reduces the equilibrium level of income  $Y_0$

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*Taxation as a function of income*

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## Multiplier with taxes

- Taxes are leakage or withdrawal
- Multiplier now smaller
- $1/1-c(1-t)$  instead of  $1/(1-c)$
- Taxes have to be paid before spending can occur
- **Example:** if  $c = 0,75$  and  $t = 0,2$ , then  $\alpha = 2,5$ :  
 $\alpha = 1/1-c(1-t) = 1/1-0,75(1-0,2)$   
 $= 1/1-0,75(0,8) = 1/1-0,6 = 1/0,4 = 2,5$

## Equilibrium level of income with government

### The model

$$Y = A \text{ (equilibrium)}$$

$$A = C + I + G \text{ (aggregate spending)}$$

$$C = \bar{C} + cY_d, \text{ where } Y_d = Y - T \text{ (consumption spending)}$$

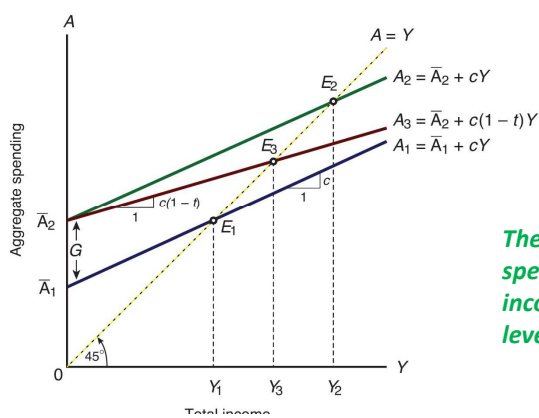
$$T = tY \text{ (taxes)}$$

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### Equilibrium

$$Y_0 = 1 / 1 - c(1 - t) (\bar{C} + \bar{I} + \bar{G})$$

(= multiplier  $\alpha$  x autonomous spending  $\bar{A}$ )



*The impact of government spending and a proportional income tax on the equilibrium level of income*

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## Fiscal policy

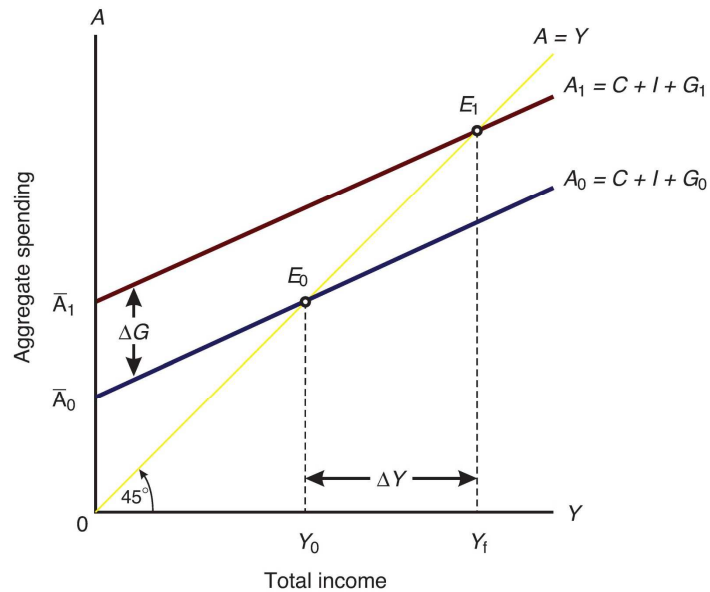
- Use government spending and/or taxes to affect  $Y$
- Expansionary/stimulatory policy: increase  $G$ , decrease  $t$
- Contractionary/restrictive policy: decrease  $G$ , increase  $t$
- We examine change in  $G$  only

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- If income  $Y$  has to increase by  $\Delta Y$  (the income gap)
  - by how much must  $G$  increase?
  - answer is by less than  $\Delta Y$
  - Why? Because of the multiplier  $\alpha$
  - increase in  $G$  will be multiplied
- **Numerical example**
  - if  $\Delta Y = 300$  and  $\alpha = 3$ , then  $\Delta G$  required  
=  $300/3 = 100$

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- Graphical exposition



*Fiscal policy in the simple Keynesian model*

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## Numerical example

Suppose  $\bar{C} = 300$ ,  $\bar{I} = 6,00$ ,  $\bar{G} = 800$ ,  $c = 0,9$ ,  $t = 0,33$   
 $Y_f = 4500$

$$Y_0 = \alpha \bar{A}$$

$$\begin{aligned} \alpha &= 1/1-c(1-t) \\ &= 1/1-0,9(1-0,33) \\ &= 1/1-0,9(0,67) \\ &= 1/1-0,60 \\ &= 1/0,4 \\ &= 2,5 \end{aligned}$$

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$$\bar{A} = 300 + 600 + 800 = 1700$$

$$Y_0 = \alpha \bar{A} = 2,5 \times 1700 = 4250$$

$$\Delta Y (\text{income gap}) = Y_f - Y_0 = 4500 - 4250 + 250$$

$$\Delta G \text{ to fill income gap} = 250/2,5 = 100$$