

# **ECO 209Y**

## **MACROECONOMIC THEORY AND POLICY**

### **LECTURE 4:**

### **THE STABILIZING ROLE OF THE GOVERNMENT**

# ECONOMIC POLICY

- Policy makers use mainly two types of policies to affect the economy: *fiscal* and *monetary* policies
- The government (Parliament) controls *fiscal policy*, while the Bank of Canada controls *monetary policy*
  - The instruments of *fiscal policy* are changes in taxes and government spending
  - The main instruments of *monetary policy* are changes in either the stock of money or the bank rate
- We will examine now the use of *fiscal policy* under the assumption that the economy is in a *recession*

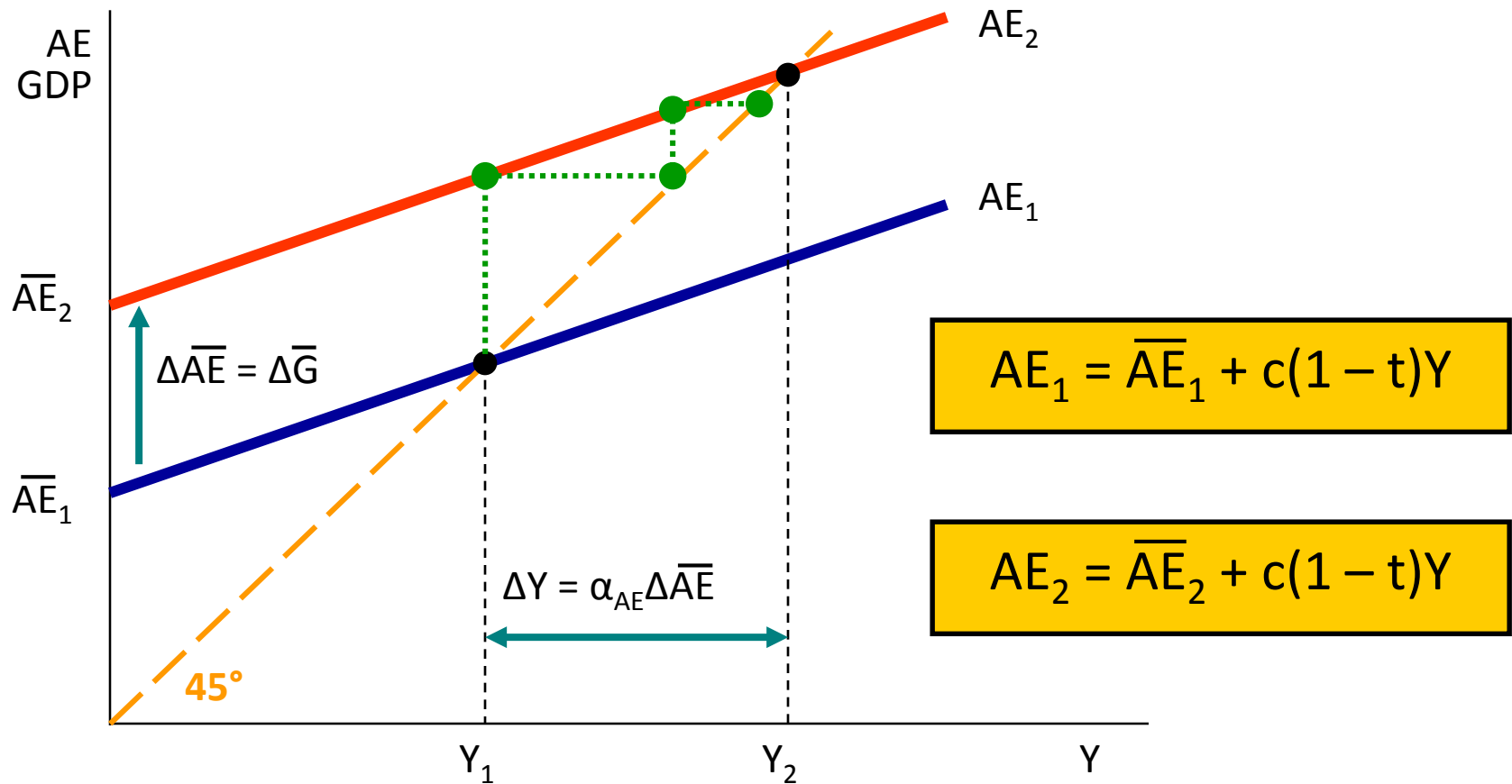
# THE USE OF FISCAL POLICY

- Initial *assumptions*:
  - The equilibrium level of income is below the full employment level (i.e., there is a *recessionary gap*)
  - There is no foreign sector ( $X = Q = 0$ )
- We will examine the effect on  $Y$  (equilibrium income) of:
  - 1) An increase in  $\bar{G}$  (government expenditure)
  - 2) A decrease in  $\bar{T}$  (autonomous taxes)
  - 3) A decrease in  $t$  (tax rate)

# THE EFFECT OF AN INCREASE IN $\bar{G}$

- Recall that  $AE = \bar{AE} + c(1 - t)Y$ 
  - where  $\bar{AE} = \bar{C} + c\bar{T}R - c\bar{T} + \bar{I} + \bar{G}$
- Therefore, a change in  $\bar{G}$  will have an impact on  $\bar{AE}$  and thus on the position of the  $AE$  curve
  - It will not have any effect on the *slope* of the  $AE$  curve
  - Therefore, the value of the *multiplier* will not be affected either
- Indeed,  $\Delta\bar{AE} = \Delta\bar{G}$
- Therefore,  $\Delta Y = \alpha_{AE} \Delta\bar{AE} = \alpha_{AE} \Delta\bar{G}$
- Note that if  $\Delta\bar{G} > 0$ , then  $\Delta\bar{AE} > 0$  and the  $AE$  curve shifts up

# THE EFFECT OF AN INCREASE IN $\bar{G}$



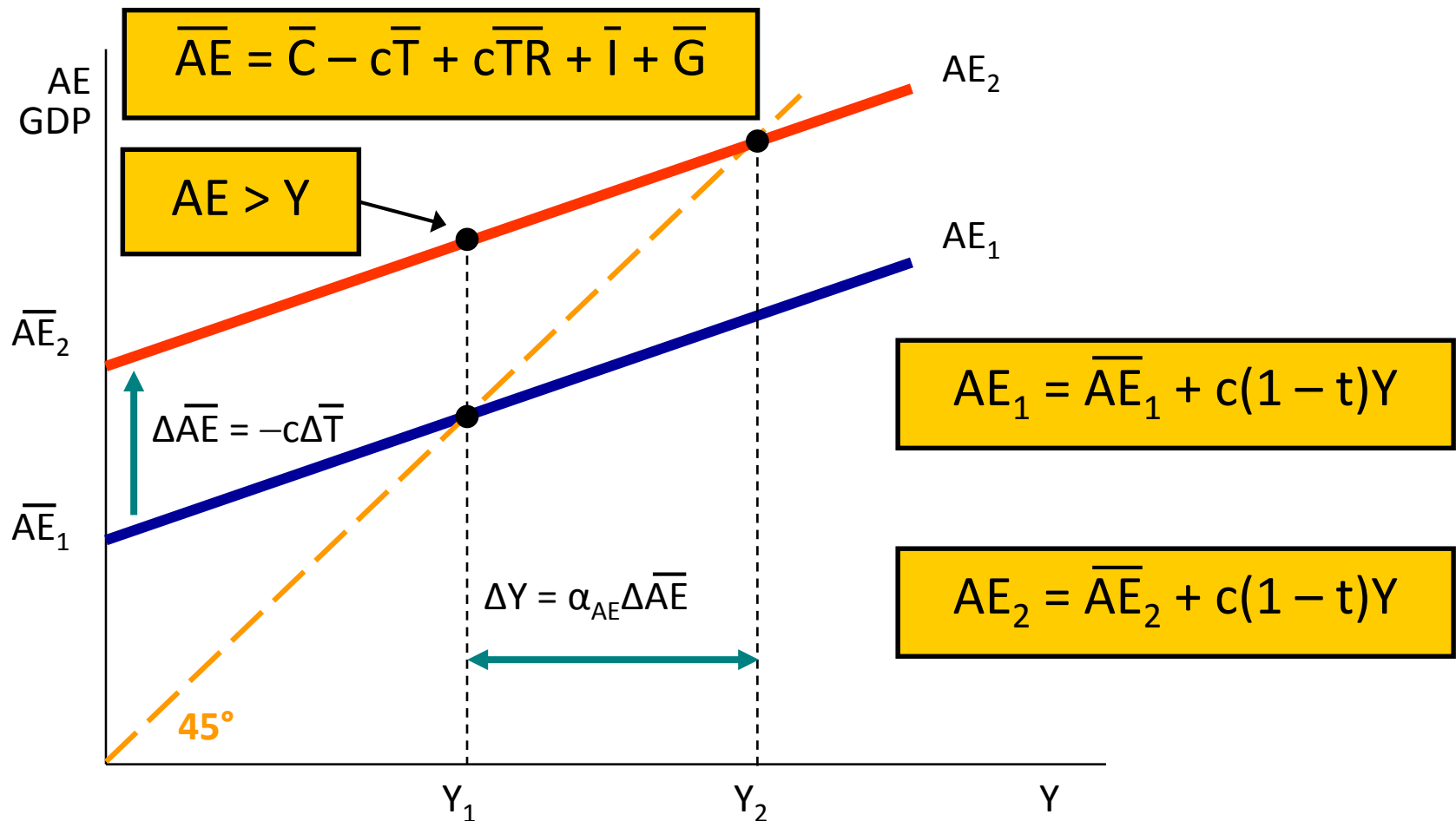
# EFFECT OF A CHANGE IN TAXES

- A change in **taxes** ( $TA$ ) will affect the level of **disposable income** ( $YD$ ) and thus the level of **consumption** ( $C$ )
- In turn, since consumption ( $C$ ) is one component of **aggregate expenditure** ( $AE$ ), the change in taxes will have an impact on the level of **equilibrium income** ( $Y^*$ )
- Let's consider two cases:
  - The impact of a change in **autonomous net taxes** ( $\bar{T}$ ), i.e., autonomous taxes minus autonomous subsidies
  - The impact of a change in the **tax rate** ( $t$ )

# THE EFFECT OF A CHANGE IN $\bar{T}$

- Recall that  $AE = \bar{AE} + c(1 - t)Y$ 
  - where  $\bar{AE} = \bar{C} + c\bar{T}R - c\bar{T} + \bar{I} + \bar{G}$
- Therefore, a change in  $\bar{T}$  will have an impact on  $\bar{AE}$  and thus on the position of the  $AE$  curve
  - It will not have any effect on the *slope* of the  $AE$  curve
  - Therefore, the value of the *multiplier* will not be affected either
- Indeed,  $\Delta\bar{AE} = -c\Delta\bar{T}$
- Therefore,  $\Delta Y = \alpha_{AE} \Delta\bar{AE} = -\alpha_{AE} c\Delta\bar{T}$
- Note that if  $\Delta\bar{T} < 0$ , then  $\Delta\bar{AE} > 0$  and the  $AE$  curve shifts up

# THE EFFECT OF A DECREASE IN $\bar{T}$

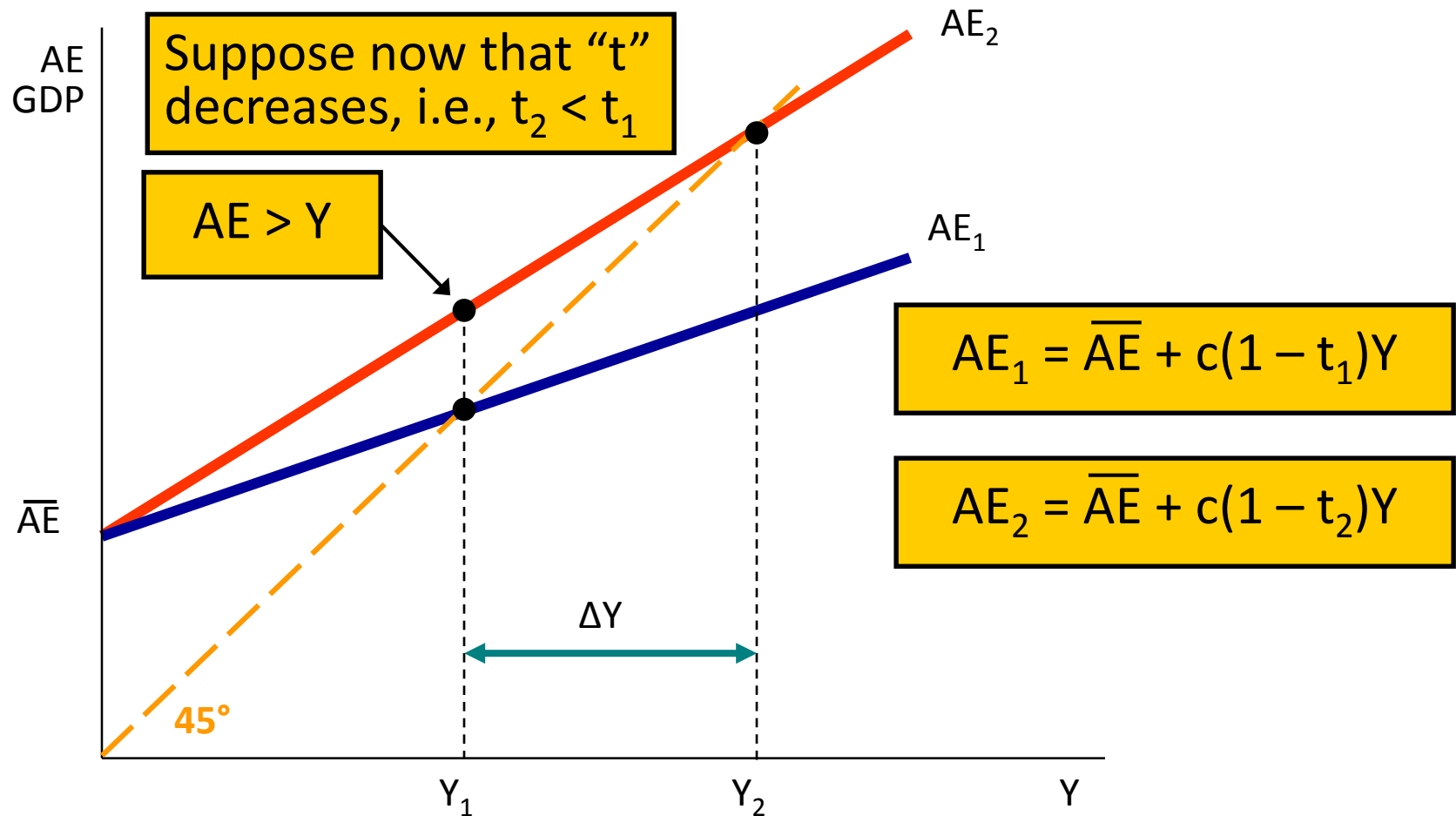




# THE EFFECT OF A CHANGE IN “t”

- Recall that  $AE = \bar{AE} + c(1 - t)Y$
- Therefore, a change in  $t$  will have an impact on the *slope* of the  $AE$  curve
  - Therefore, the value of the *multiplier* will be affected
  - It will not have, however, any effect on the vertical *intercept* of the  $AE$  curve
- Note that if  $\Delta t < 0$ , then  $AE$  curve becomes *steeper*

# THE EFFECT OF A DECREASE IN “t”



# SOME MACROECONOMIC MYTHS

- **Myth #1:** Taxes are a burden
- **Myth #2:** Budget deficits are bad
- **Myth #3:** Canadians are over-taxed
- **Myth #4:** Public sector is less efficient than private sector
- **Myth #5:** Canada spends too much on social services
- **Myth #6:** Countries with large governments are less competitive
- **Myth #7:** Countries with large governments are more corrupt
- **Myth #8:** People of large governments' countries are less happy

# MYTH #1 – TAXES ARE A BURDEN

- What are **taxes**?
  - Taxes are the **price** we must pay for the services we, as society, expect to receive from the government
- Do you consider the **price** of a book you purchased to be a **burden**?
- Even when they don't cost us an out-of-pocket expense, government services are not **free**
  - There is a **cost** involved and this cost is paid with our **taxes**

# MYTH #2 – DEFICITS ARE BAD

- What is a *deficit*?
- What is the cause of the *deficit*?
  - Too much *spending*?
  - Not enough *revenues*?
- Are *deficits* always '*bad*'? Are *surpluses* always '*good*'?
- *Cyclical* deficits (surpluses) versus *structural* deficits (surpluses)

# THE GOVERNMENT BUDGET

- The ***budget surplus (BS)*** is defined as the difference between ***government revenues*** (taxes, **TA**) and the ***government total expenditures*** (expenditure on goods and services, **G**, plus transfer payments, **TR**)
  - $BS = TA - (G + TR)$
- The ***budget deficit (BD)*** is defined as the difference between ***government total expenditures*** and ***government revenues***
  - $BD = (G + TR) - TA$
- Note that the ***budget deficit*** is the ***negative*** of the ***budget surplus*** →  $BD = -BS$

# BUDGET SURPLUS FUNCTION

- Suppose that:

$$TA = \bar{T} + tY$$

$$G = \bar{G}$$

$$TR = \bar{TR}$$

- Therefore,

$$BS = TA - G - TR$$

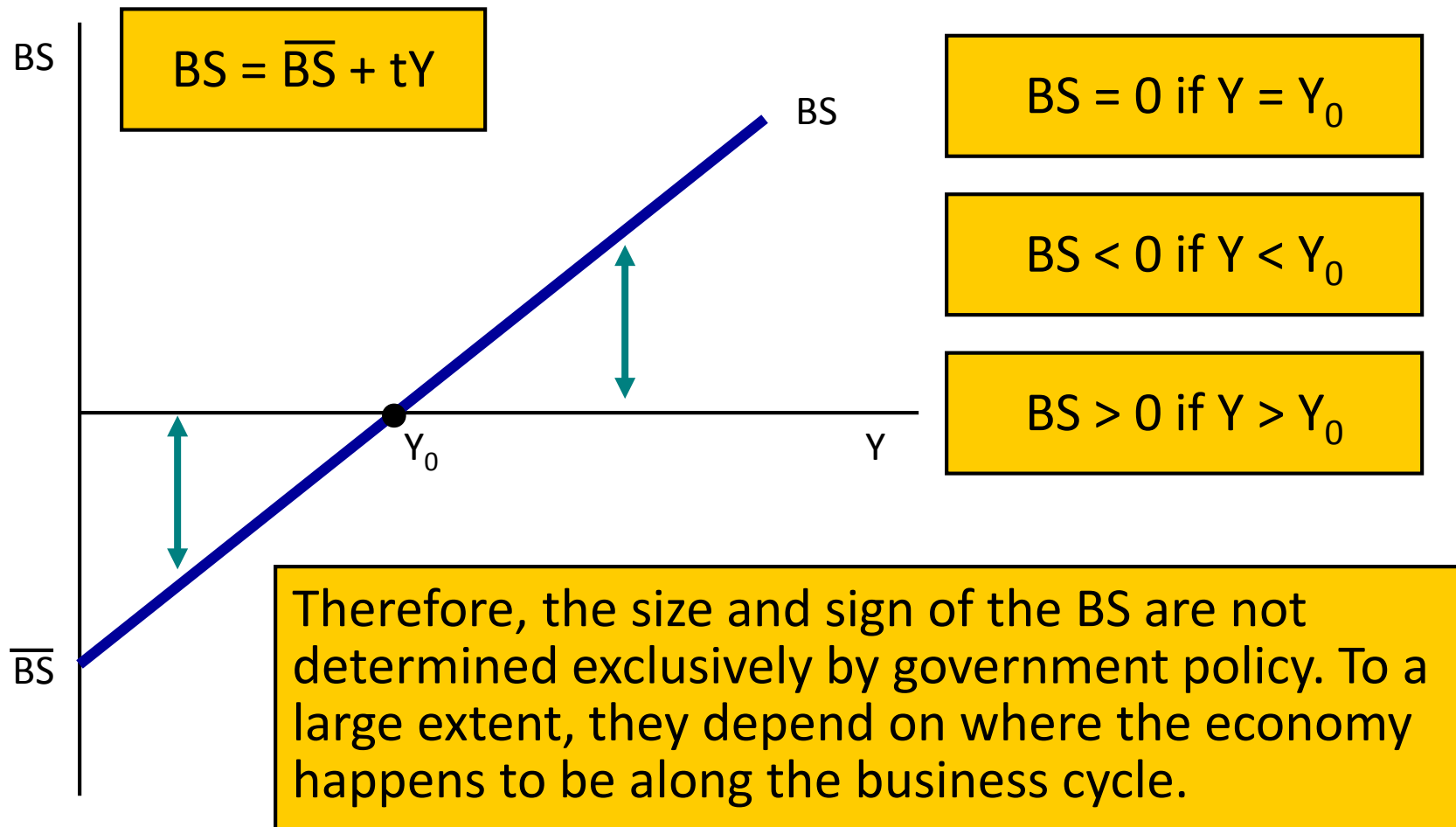
$$= \bar{T} + tY - \bar{G} - \bar{TR}$$

$$= (\bar{T} - \bar{G} - \bar{TR}) + tY$$

$$= \bar{BS} + tY$$

$$\bar{BS} = \bar{T} - \bar{G} - \bar{TR} < 0$$

# BUDGET SURPLUS FUNCTION





# AN INCREASE IN $\bar{G}$ AND THE BS

- Does an increase in  $\bar{G}$  cause **BS** to decrease?
- Even if **BS** were to decrease, the decrease would *not* be equal to the increase in  $\bar{G}$
- Since  $\Delta\bar{G}$  causes **Y** to increase, *revenues* (**TA**) also increase when **Y** rises and thus the **BS** decreases by less than  $\Delta\bar{G}$
- Indeed, the  $\Delta\bar{G}$  causes **Y** to increase by  $\Delta\bar{G}$  times the multiplier:  $\Delta Y = \alpha_{AE} \Delta\bar{G}$
- Therefore, taxes increase by the  $\Delta Y$  times the tax rate (**t**):  
$$\Delta TA = t \Delta Y = t \alpha_{AE} \Delta\bar{G}$$

# AN INCREASE IN G AND THE BS

$$\begin{aligned}\Delta BS &= \Delta TA - \Delta G \\ &= t \alpha_{AE} \Delta \bar{G} - \Delta \bar{G} \\ &= (t \alpha_{AE} - 1) \Delta \bar{G} \\ &= \left[ \frac{t}{1 - c(1 - t)} - 1 \right] \Delta \bar{G} \\ &= \frac{t - [1 - c(1 - t)]}{1 - c(1 - t)} \Delta \bar{G} \\ &= \frac{t - 1 + c - ct}{1 - c(1 - t)} \Delta \bar{G} \\ &= - \frac{(1 - c)(1 - t)}{1 - c(1 - t)} \Delta \bar{G} < 0\end{aligned}$$

$$\alpha_{AE} = \frac{1}{1 - c(1 - t)}$$

# THE FULL-EMPLOYMENT BUDGET SURPLUS

- Depending on the level of  $Y$ , we could have a positive or negative budget surplus independently of the level of  $G$ 
  - Therefore, there is nothing intrinsically *right* or *wrong* with a positive or negative budget surplus per se
- To conclude that a positive or negative budget surplus is not desirable we must first estimate what the *full-employment budget surplus* would be
  - The *full-employment budget surplus* measures the surplus at the *full employment* level of income ( $Y_{fe}$ )

# THE FULL-EMPLOYMENT BUDGET SURPLUS (CONT'D)

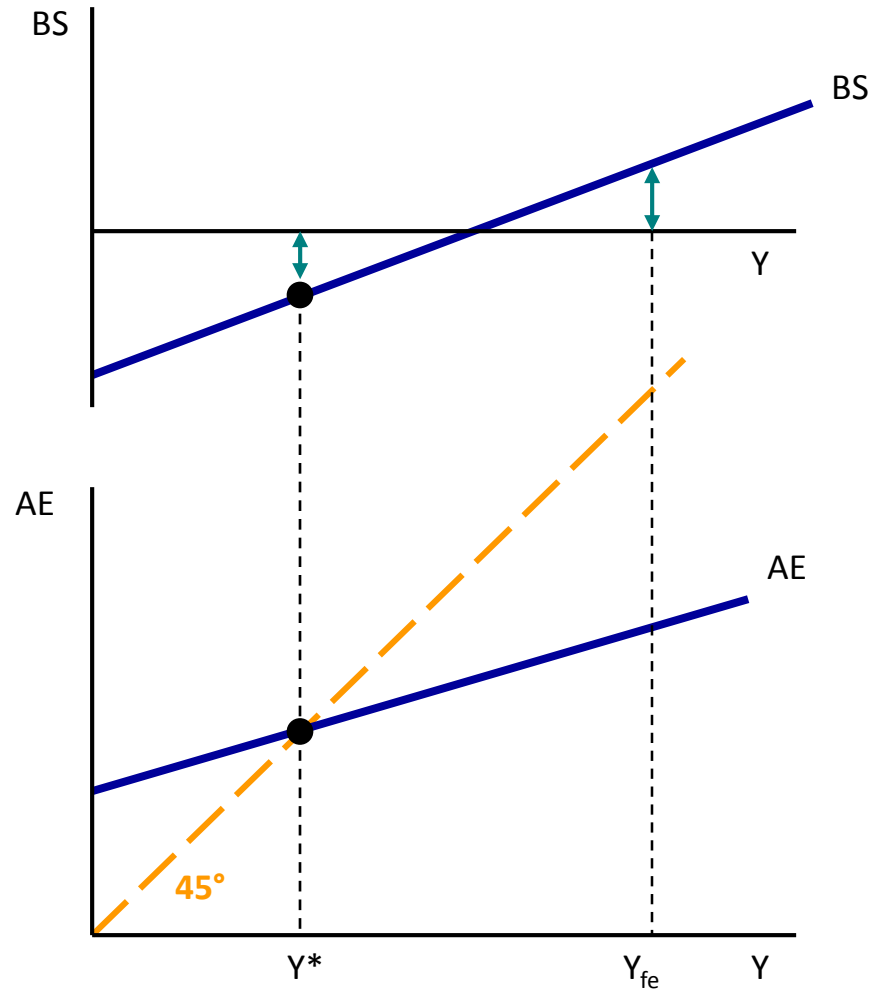
- We would normally expect the government to run a budget **deficit** during periods of **recession** (mainly due to the fall in government revenues)
  - This is called a **cyclical** budget deficit
  - This is a **“good”** deficit
- Similarly, we would expect the government to run a budget **surplus** during periods of **economic boom** (mainly due to the increase in government revenues)
  - This is called a **cyclical** budget surplus
  - This is a **“good”** surplus

# THE FULL-EMPLOYMENT BUDGET SURPLUS (CONT'D)

- A **deficit** during periods of **economic boom** is called a **structural** deficit (due to either too much spending or taxes too low)
  - This is a **“bad”** deficit
- Similarly, a **surplus** during periods of **recession** is called a **structural** surplus (due to either spending too low or too much taxes)
  - This is a **“bad”** surplus

# THE FULL-EMPLOYMENT BUDGET

## SURPLUS (CONT'D)

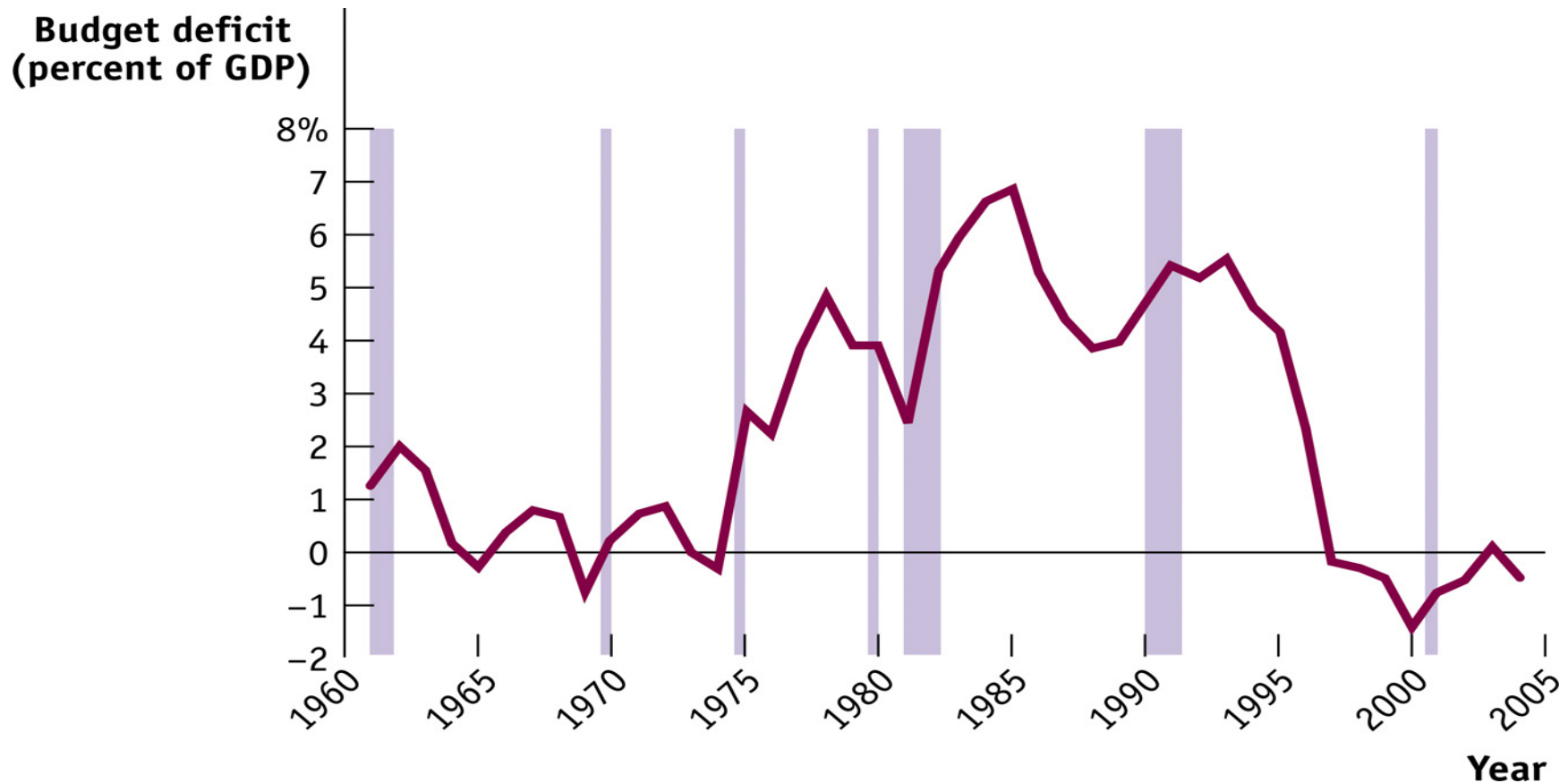


As the diagram shows, there is a budget deficit at the initial level of equilibrium income.

However, the diagram also shows that there would be a budget surplus if the level of equilibrium income were at the level of full-employment income.

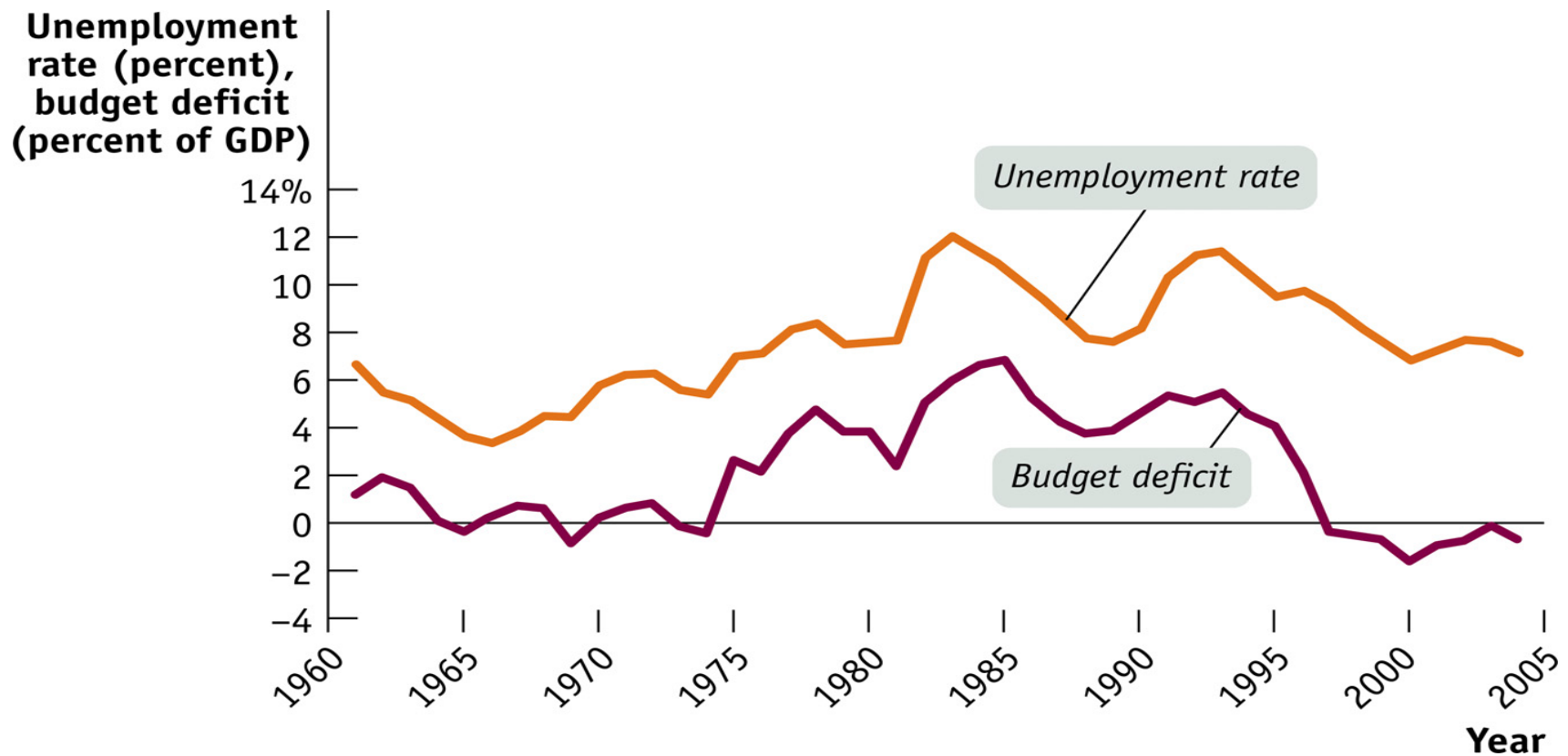
The diagram suggests that there is insufficient demand and thus  $\bar{G}$  should be increased rather than decreased.

# FEDERAL BUDGET DEFICIT AS PERCENTAGE OF GDP (1960-2004)



**Source:** P. Krugman, R. Wells and A. Myatt, *Macroeconomics*.

# FEDERAL BUDGET DEFICIT AND THE UNEMPLOYMENT RATE (1960-2004)



**Source:** P. Krugman, R. Wells and A. Myatt, *Macroeconomics*.



# MYTH #3 – WE ARE OVER-TAXED

- Do we pay too much in *taxes*?
  - What is *too much*?
  - And what is *too little*?
- Too much or too little are *relative* terms, i.e., compared to something else:
  - Relative to the *services* we receive for the *taxes* we pay
  - Relative to what other *countries* pay for the same *services*
- Look at the data in the following table

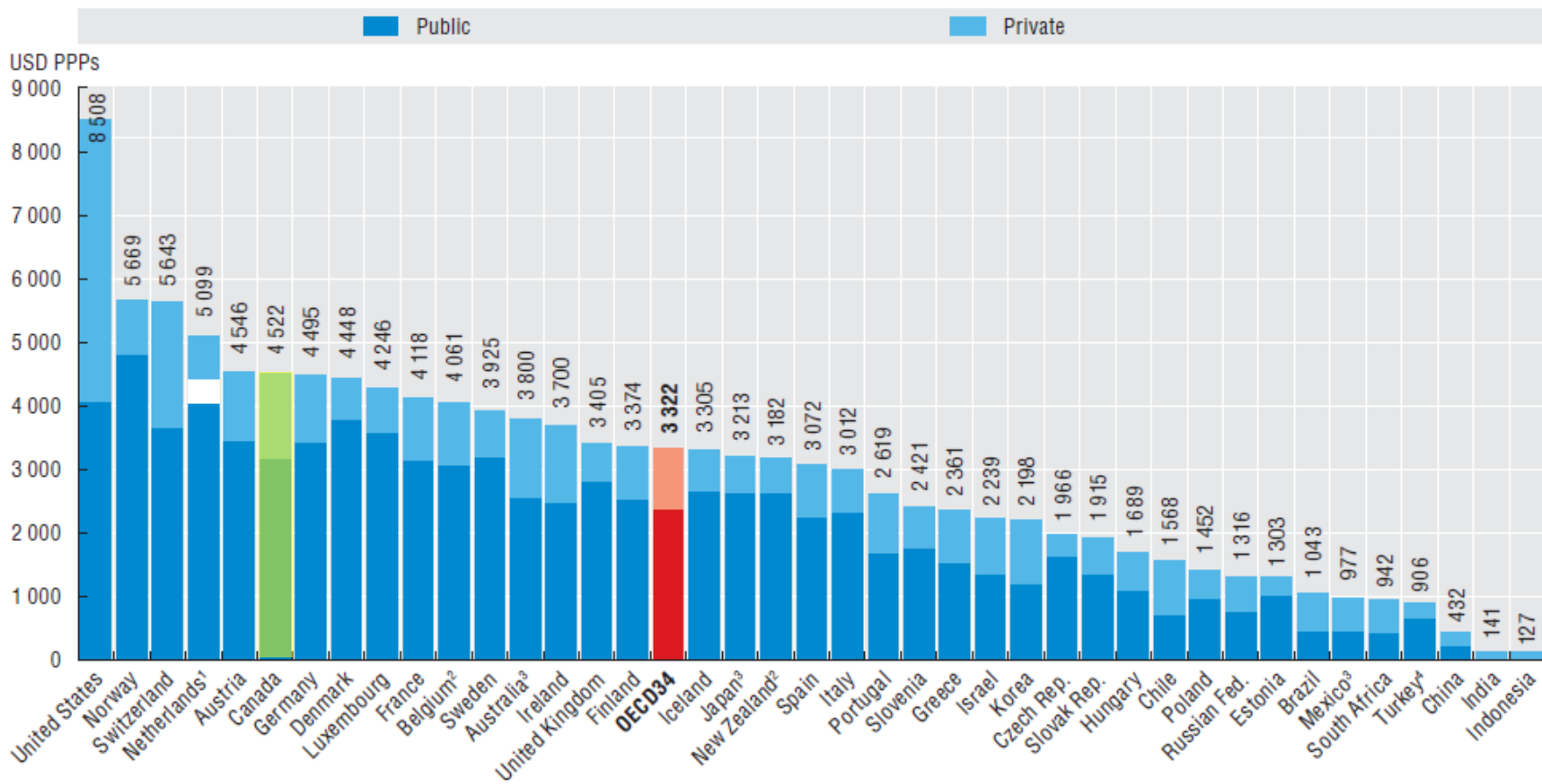
# TAXES AS PERCENTAGE OF GDP (2010)

Country	Taxes as % of GDP	Country	Taxes as % of GDP
Australia	n/a	Korea	25.1
Austria	42.0	Mexico	18.1
Belgium	43.8	Netherlands	n/a
<b>Canada</b>	<b>31.0</b>	New Zealand	31.3
Czech Republic	34.9	<b>Norway</b>	<b>42.8</b>
<b>Denmark</b>	<b>48.2</b>	Poland	n/a
<b>Finland</b>	<b>42.1</b>	Portugal	31.3
France	42.9	Slovak Republic	28.4
Germany	36.3	Spain	31.7
Greece	30.9	<b>Sweden</b>	<b>45.8</b>
Hungary	37.6	Switzerland	29.8
Iceland	36.3	Turkey	26.0
Ireland	28.0	United Kingdom	35.0
Italy	43.0	<b>United States</b>	<b>24.8</b>
Japan	n/a	<b>OECD average</b>	n/a

**Source:** OECD Tax Statistics, 2011.

# HEALTH EXPENDITURE PER CAPITA

## (2011 OR NEAREST YEAR)



Source: OECD, *Health at Glance 2013 – OECD Indicators*, p. 155.

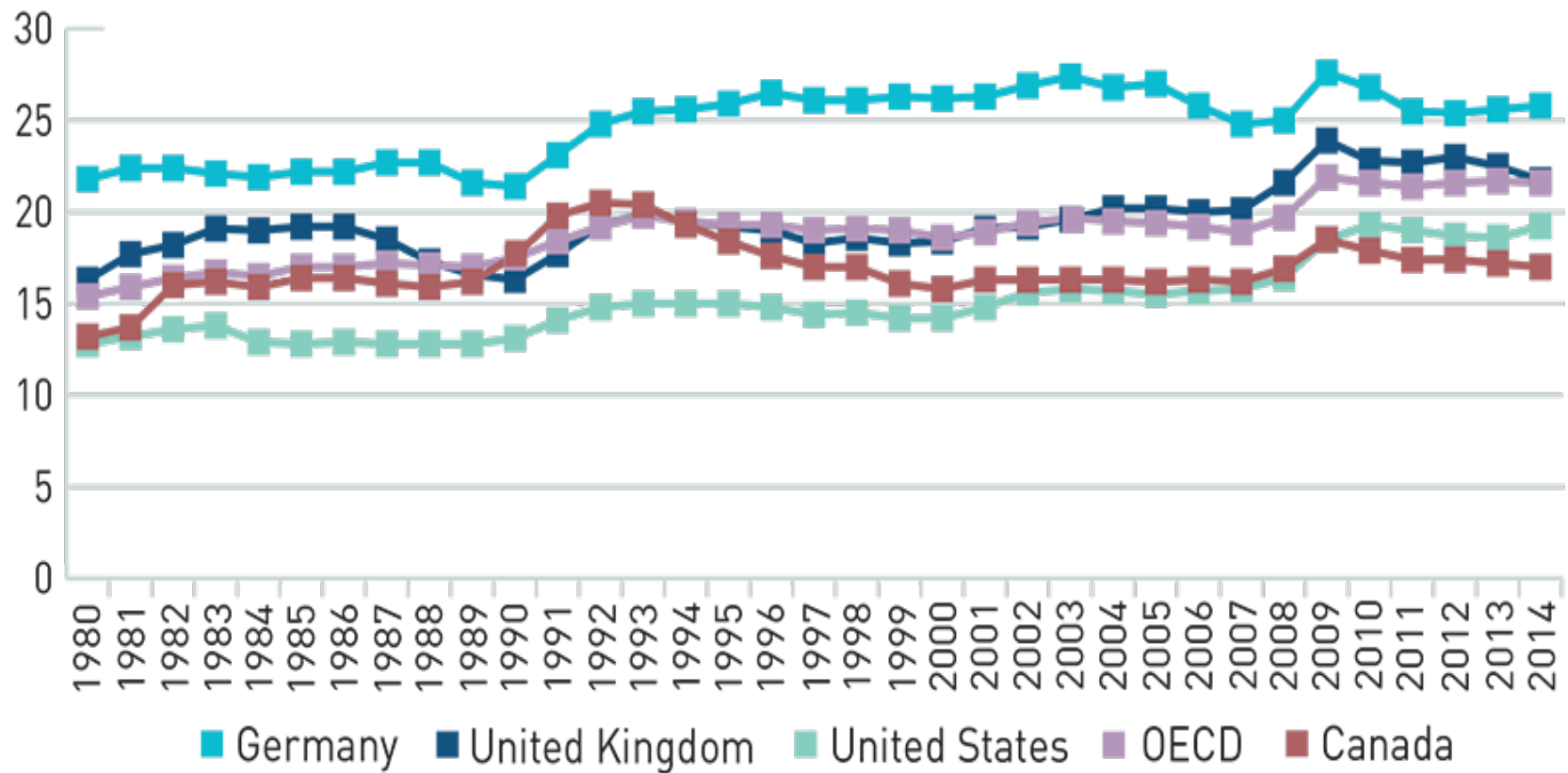
# MYTH #4 – PUBLIC SECTOR IS LESS EFFICIENT

- Is the public sector *always* less efficient than the private sector?
  - Not necessarily
  - It varies from sector to sector
- Data suggests that public sector is more efficient in the delivery of services such as education, health care, and security
- Look at the previous table showing expenditure per capita on health care services

# MYTH #5 – CANADA SPENDS TOO MUCH ON SOCIAL SERVICES

- Canada does spend a significant amount (total and per capita) on social services
  - But not so much relative to other OECD countries
- Look at the following table showing public social spending as a percentage of GDP
  - At the present time, we are spending even less than the US (on a per capita basis)

# PUBLIC SOCIAL SPENDING (% OF GDP)



Source: Mowat Centre based on OECD Social Expenditure Database.

# MYTH #6 – COUNTRIES WITH LARGE GOVERNMENTS ARE LESS COMPETITIVE

- This is a corollary of the myth that the public sector is always less efficient than the private sector
  - Greater bureaucracy, more costly, thus less competitive
- Data suggests that larger governments do not necessarily reduce competitiveness, and might even enhance it
  - See the following table

# COMPETITIVENESS RANKING (2010)

Country	Rank	Score	Country	Rank	Score
Switzerland	1	5.63	Hong Kong SAR	11	5.30
<b>Sweden</b>	<b>2</b>	<b>5.56</b>	United Kingdom	12	5.25
Singapore	3	5.48	Taiwan, China	13	5.21
<b>United States</b>	<b>4</b>	<b>5.43</b>	<b>Norway</b>	<b>14</b>	<b>5.14</b>
Germany	5	5.39	France	15	5.13
Japan	6	5.37	Australia	16	5.11
<b>Finland</b>	<b>7</b>	<b>5.37</b>	Qatar	17	5.10
Netherlands	8	5.33	Austria	18	5.09
<b>Denmark</b>	<b>9</b>	<b>5.32</b>	Belgium	19	5.07
<b>Canada</b>	<b>10</b>	<b>5.30</b>	Luxembourg	20	5.05

Source: World Economic Forum, *The Global Competitiveness Report*, 2013.



# MYTH #7 – COUNTRIES WITH LARGE GOVERNMENTS ARE MORE CORRUPT

- This view is based on the perception that large bureaucracies foster rent-seeking behaviour
- According to this view, therefore, governments should be minimized
  - Less corruption
  - More efficiency
- Data suggests that there is no correlation between larger governments and greater corruption
  - See the following table

# CORRUPTION PERCEPTIONS INDEX (2014)

Country	Rank	Score	Country	Rank	Score
<b>Denmark</b>	<b>1</b>	<b>92</b>	Iceland	12	79
New Zealand	2	91	United Kingdom	14	78
<b>Finland</b>	<b>3</b>	<b>89</b>	Belgium	15	76
<b>Sweden</b>	<b>4</b>	<b>87</b>	Japan	15	76
<b>Norway</b>	<b>5</b>	<b>86</b>	Barbados	17	74
Switzerland	6	86	Hong Kong	17	74
Singapore	7	84	Ireland	17	74
Netherlands	8	83	<b>United States</b>	<b>17</b>	<b>74</b>
Luxembourg	9	82	Chile	21	73
<b>Canada</b>	<b>10</b>	<b>81</b>	Uruguay	21	73
Australia	11	80	Austria	23	72
Germany	12	79	Bahamas	24	71

Source: Transparency International.

# MYTH #8 – COUNTRIES WITH LARGE GOVERNMENTS ARE LESS HAPPY

- This is also a corollary from the views espoused above
  - Large governments imply high taxes, less competitiveness, more corruption
  - Therefore, people are less happy
- Data suggests the opposite, which helps to disprove all the previous assertions about large governments
  - See the following table

# HAPPINESS RANKING (2012)

Country	Rank	Score	Country	Rank	Score
<b>Denmark</b>	<b>1</b>	<b>7.693</b>	Israel	11	7.301
<b>Norway</b>	<b>2</b>	<b>7.655</b>	Costa Rica	12	7.257
Switzerland	3	7.650	New Zealand	13	7.221
Netherlands	4	7.512	UAE	14	7.144
<b>Sweden</b>	<b>5</b>	<b>7.480</b>	Panama	15	7.143
<b>Canada</b>	<b>6</b>	<b>7.477</b>	Mexico	16	7.088
<b>Finland</b>	<b>7</b>	<b>7.389</b>	<b>United States</b>	<b>17</b>	<b>7.082</b>
Austria	8	7.369	Ireland	18	7.076
Iceland	9	7.355	Luxembourg	19	7.054
Australia	10	7.350	Venezuela	20	7.039

Source: United Nations, *World Happiness Report*, 2013.