ECO 209Y
Macroeconomic Theory and Policy

Lecture 4:
The Stabilizing Role of the Government

ECONOMIC POLICY

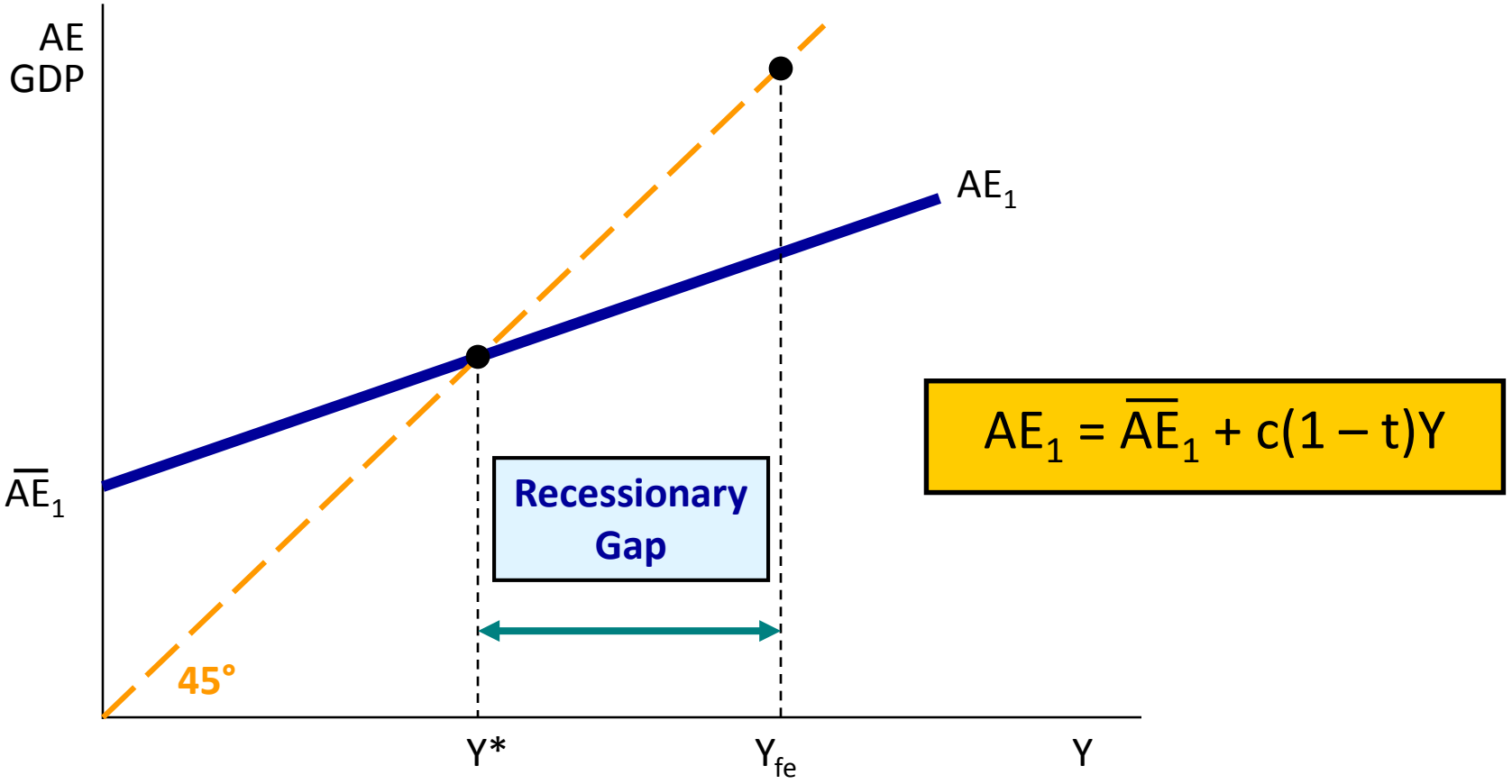
- Policy makers use mainly two types of policies to affect the economy: ***fiscal*** and ***monetary*** policies
- The government (Parliament) implements ***fiscal policy***, while the Bank of Canada implements ***monetary policy***
  - The instruments of ***fiscal policy*** are changes in taxes and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

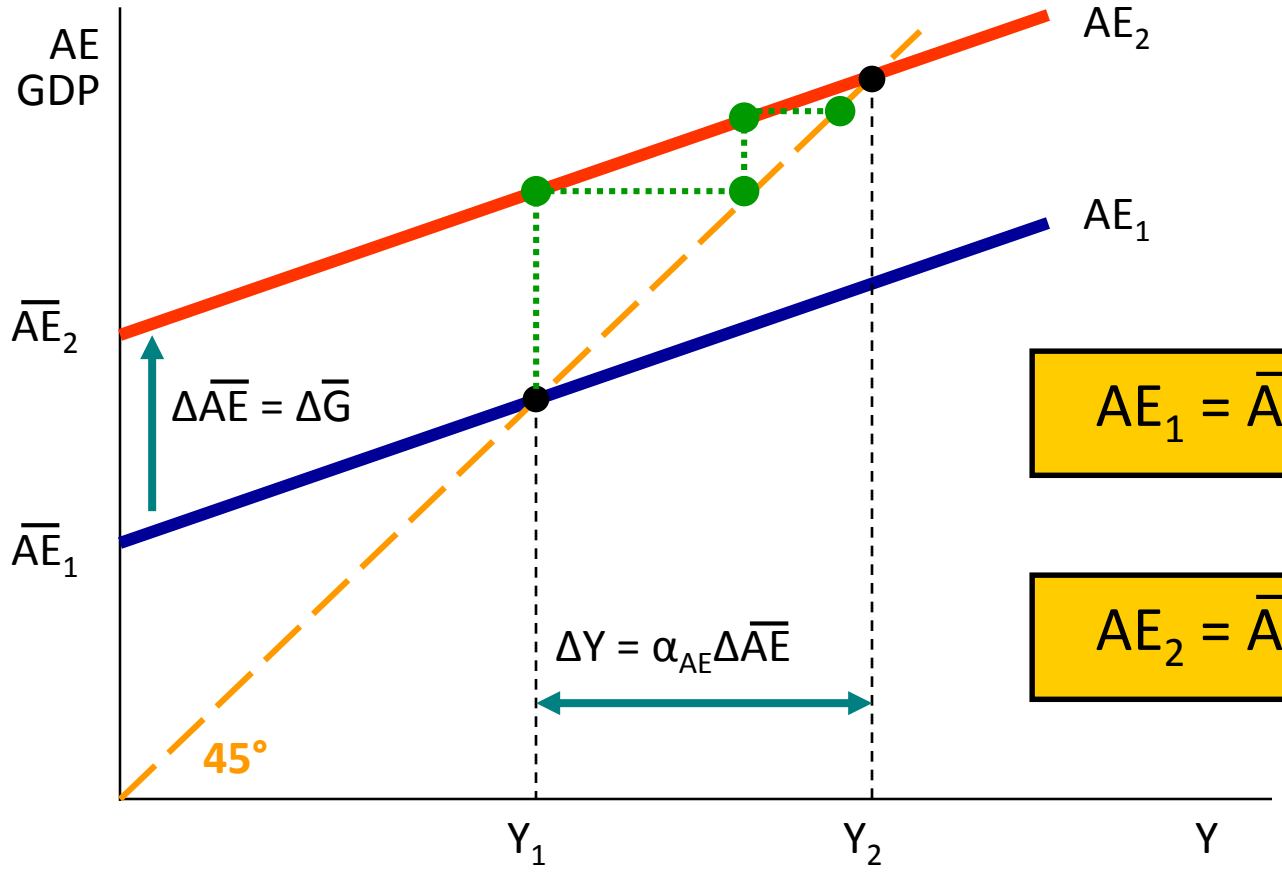
The Initial Equilibrium



The Effect of an Increase in $\bar{G}$

- Recall that $AE = \bar{AE} + c(1 - t)Y$
  - where $\bar{AE} = \bar{C} + c\bar{TR} - c\bar{T} + \bar{I} + \bar{G}$
- 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 $\bar{G}$



$$AE_1 = \bar{AE}_1 + c(1 - t)Y$$

$$AE_2 = \bar{AE}_2 + c(1 - t)Y$$

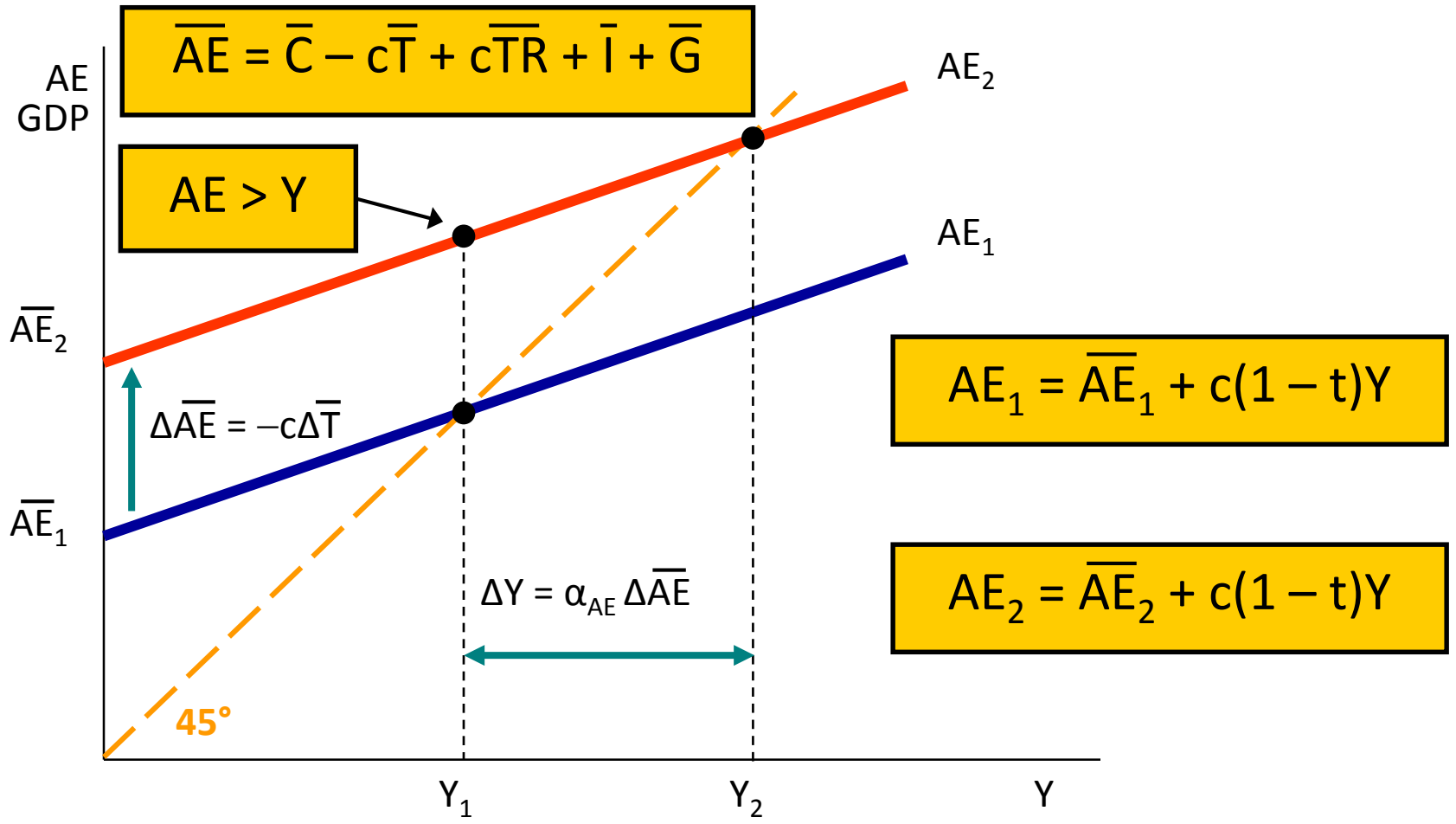
Effect of a Change in Taxes

- 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 $\bar{AE} = \bar{C} + c\bar{TR} - c\bar{T} + \bar{I} + \bar{G}$
- 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, $\Delta\bar{AE} = -c\Delta\bar{T}$ (where $\Delta YD = -\Delta\bar{T}$)
- 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

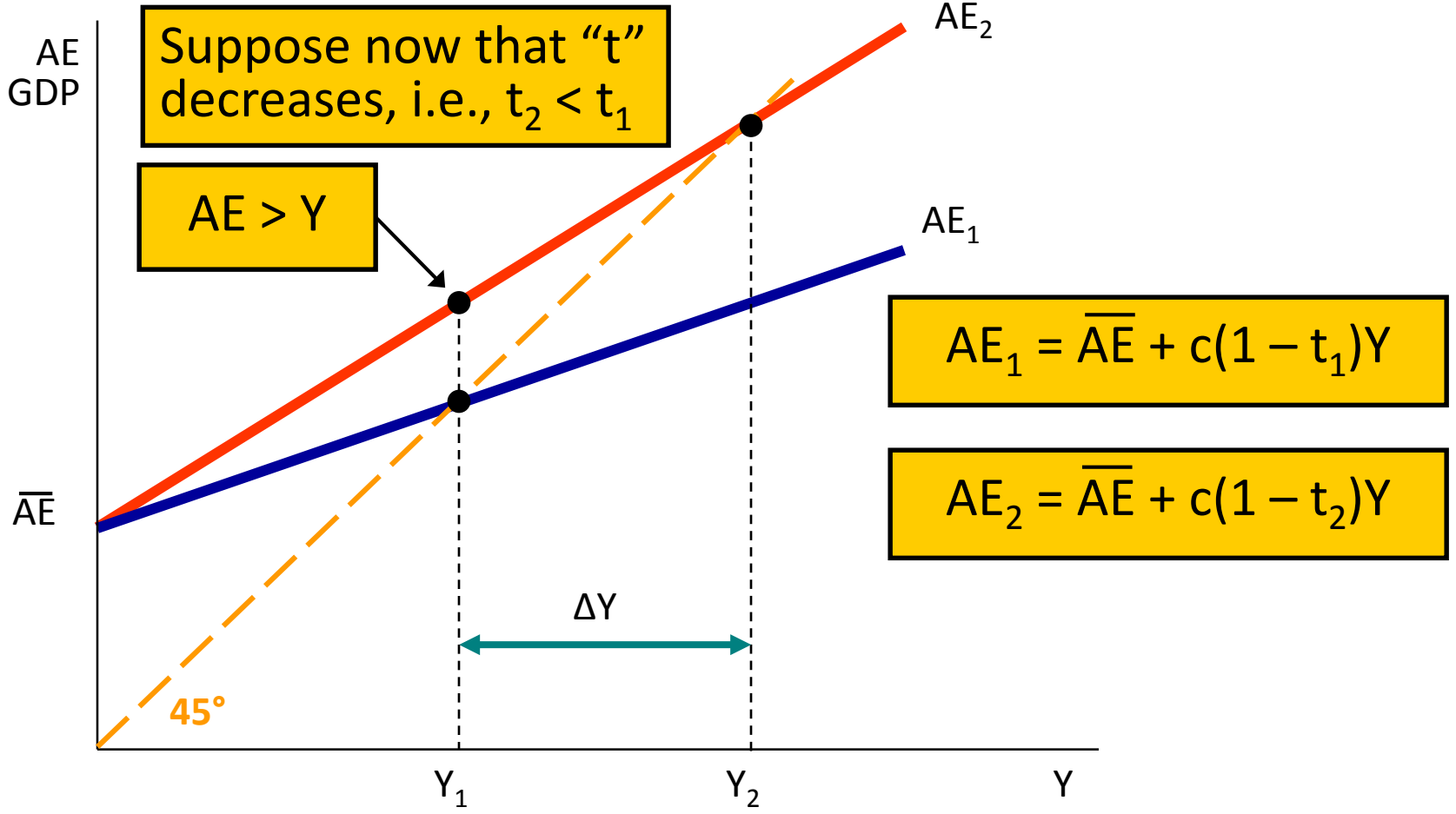
The Effect of a Decrease in $\bar{T}$



The Effect of a Change in "t"

- Recall that **$AE = \overline{AE} + c(1 - t)Y$**
- 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:

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

$$G = \bar{G}$$

$$TR = \overline{TR}$$

- Therefore,

$$BS = TA - G - TR$$

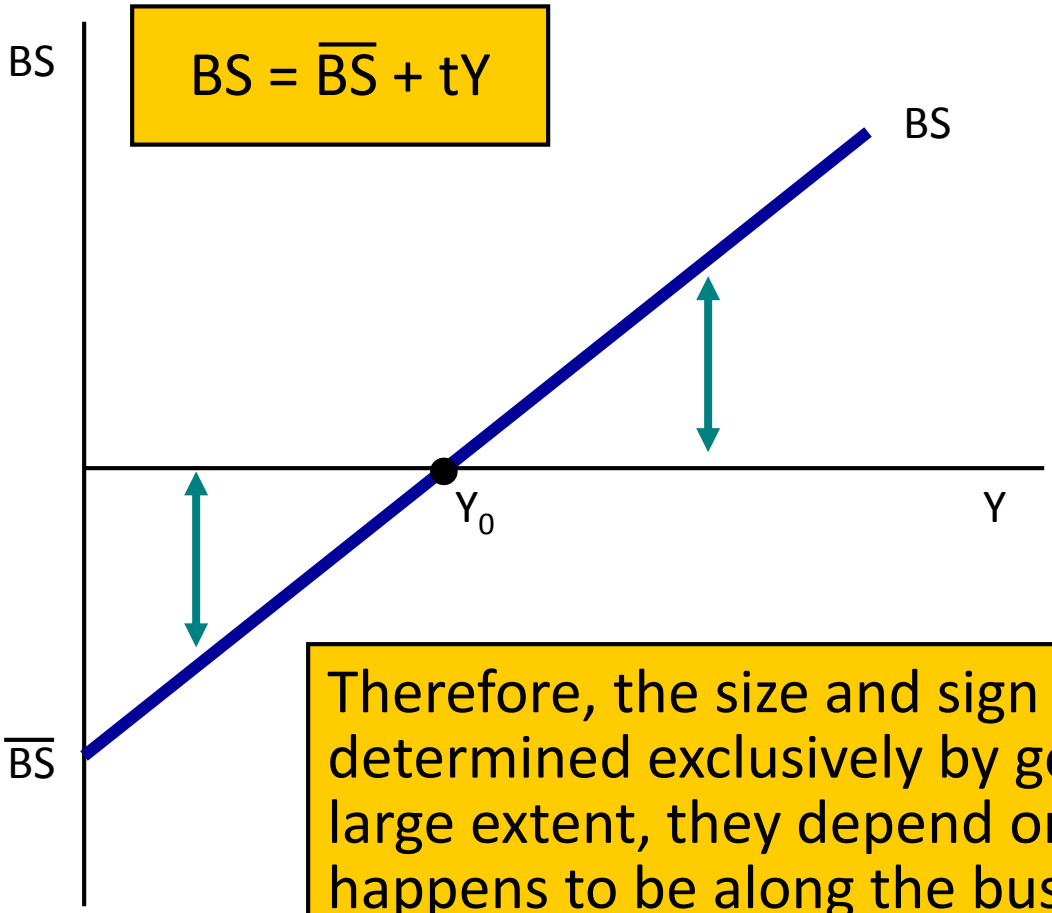
$$= \bar{T} + tY - \bar{G} - \overline{TR}$$

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

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

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

BUDGET SURPLUS FUNCTION



$BS = \overline{BS} + tY$

$BS = 0$ if $Y = Y_0$

$BS < 0$ if $Y < Y_0$

$BS > 0$ if $Y > Y_0$

Therefore, the size and sign of the BS are not determined exclusively by government policy. To a large extent, they depend on where the economy happens to be along the business cycle.

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 **ΔY** times the tax rate (**t**):

$$\Delta TA = t\,\Delta Y = t\,\alpha_{AE}\,\Delta\bar{G}$$

An Increase in G and the BS

$$\Delta BS = \Delta TA - \Delta G$$

$$= t\,\alpha_{AE}\,\Delta\bar{G} - \Delta\bar{G}$$

$$= (t\,\alpha_{AE} - 1)\,\Delta\bar{G}$$

$$= \left[\frac{t}{1 - c(1-t)} - 1\right]\Delta\bar{G}$$

$$= \frac{t - [1 - c(1-t)]}{1 - c(1-t)}\,\Delta\bar{G}$$

$$= \frac{t - 1 + c - ct}{1 - c(1-t)}\,\Delta\bar{G}$$

$$= -\frac{(1-c)(1-t)}{1 - c(1-t)}\,\Delta\bar{G} < 0$$

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

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})

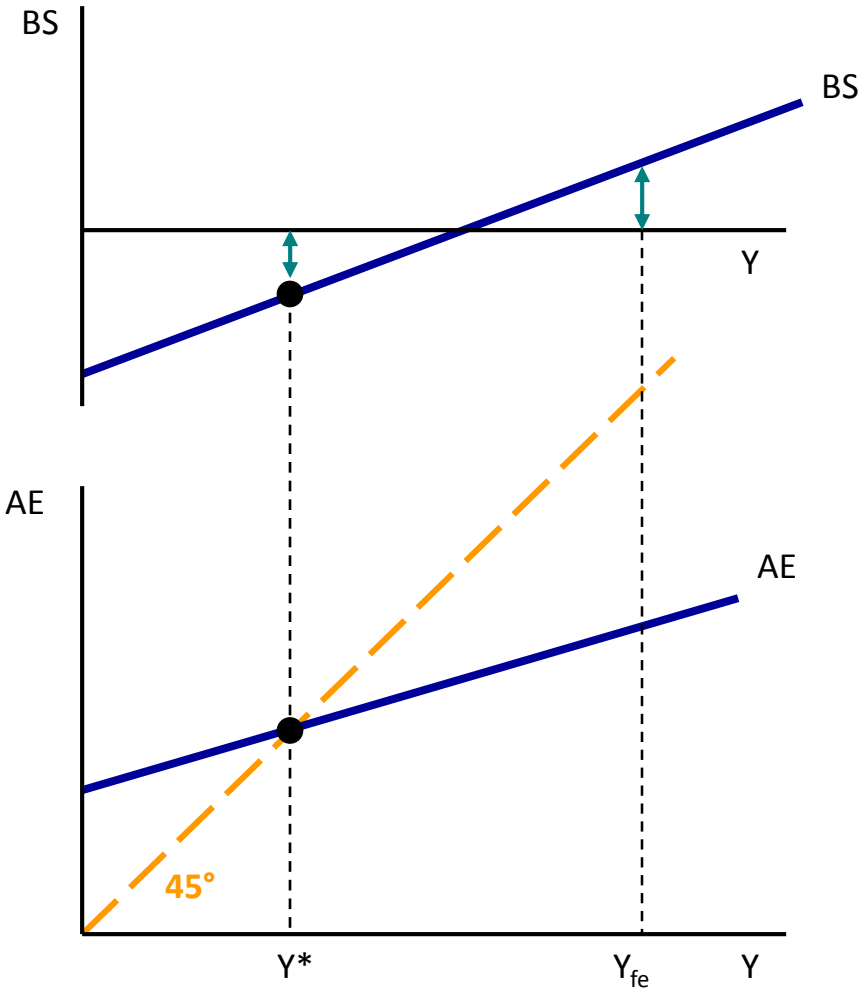
THE FULL-EMPLOYMENT BUDGET SURPLUS (CONT'D)

- 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 being too low)
  - This is a ***"bad"*** deficit
- Similarly, a ***surplus*** during periods of ***recession*** is called a ***structural*** surplus (due to either too little spending or too much taxes)
  - This is a ***"bad"*** surplus

The Full-Employment Budget Surplus (cont'd)

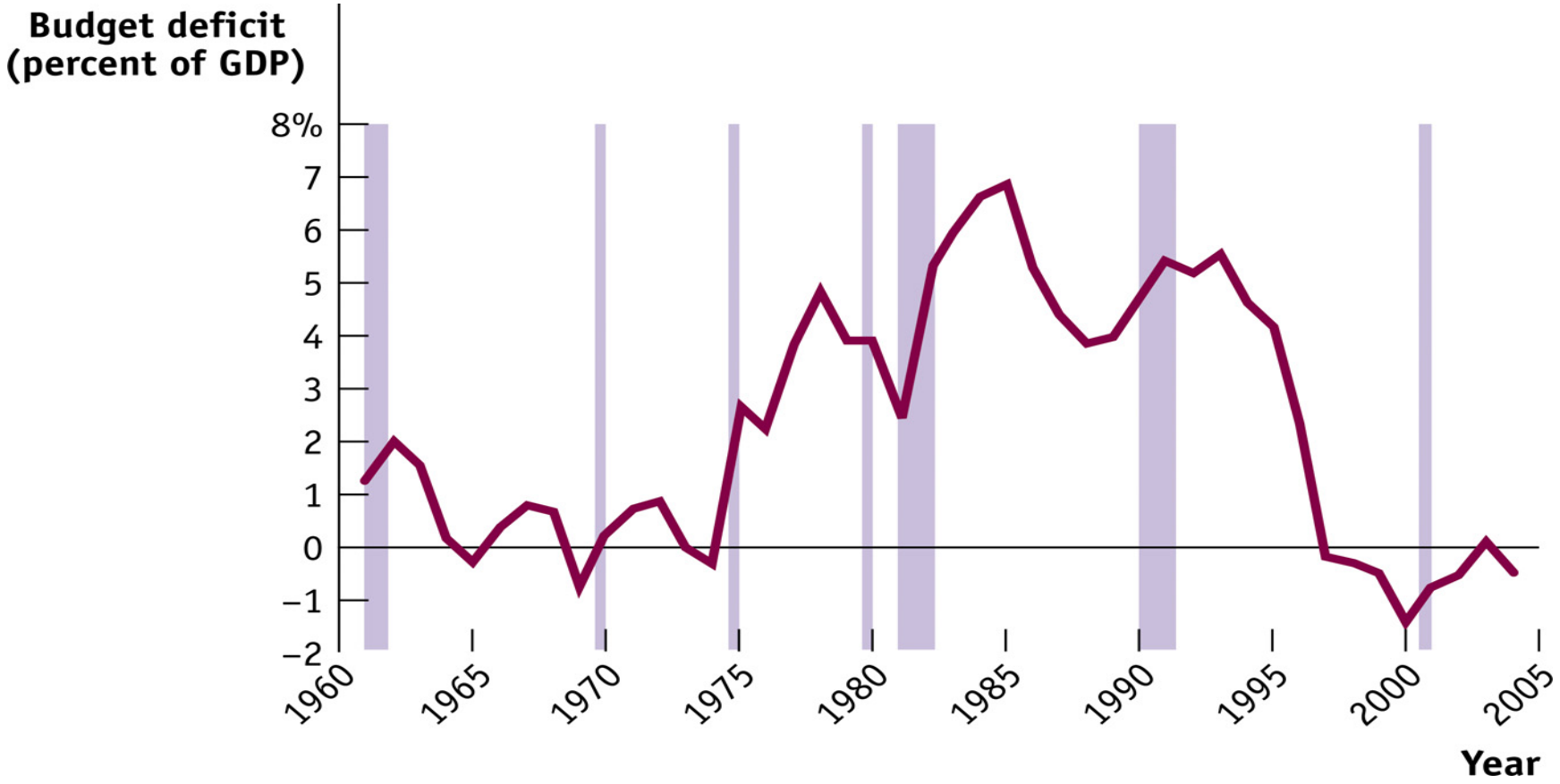


As the diagram shows, there is a budget deficit at the initial level of equilibrium income.

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.

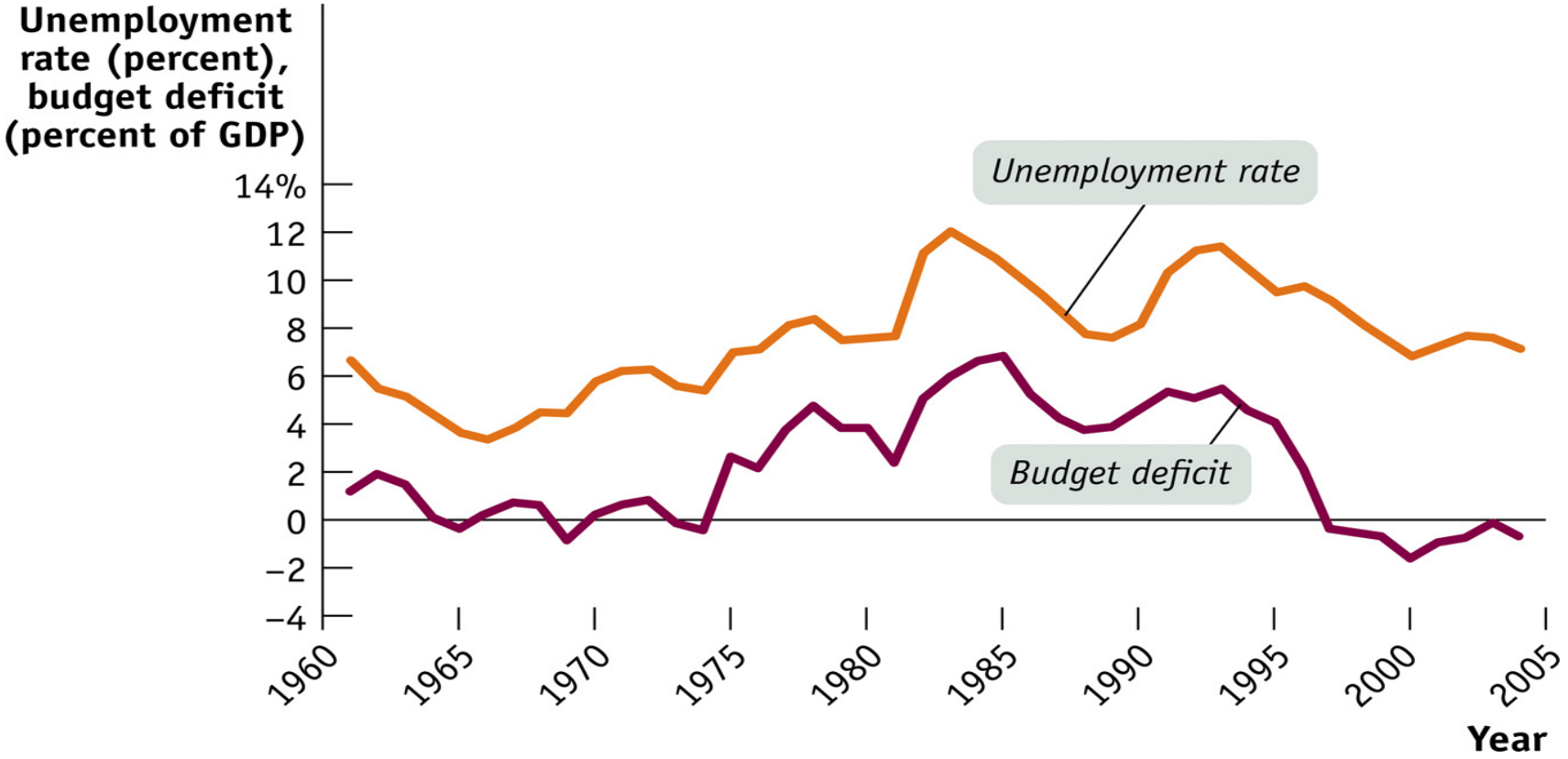
The diagram suggests that there is insufficient demand and thus $\bar{G}$ should be increased rather than decreased.

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

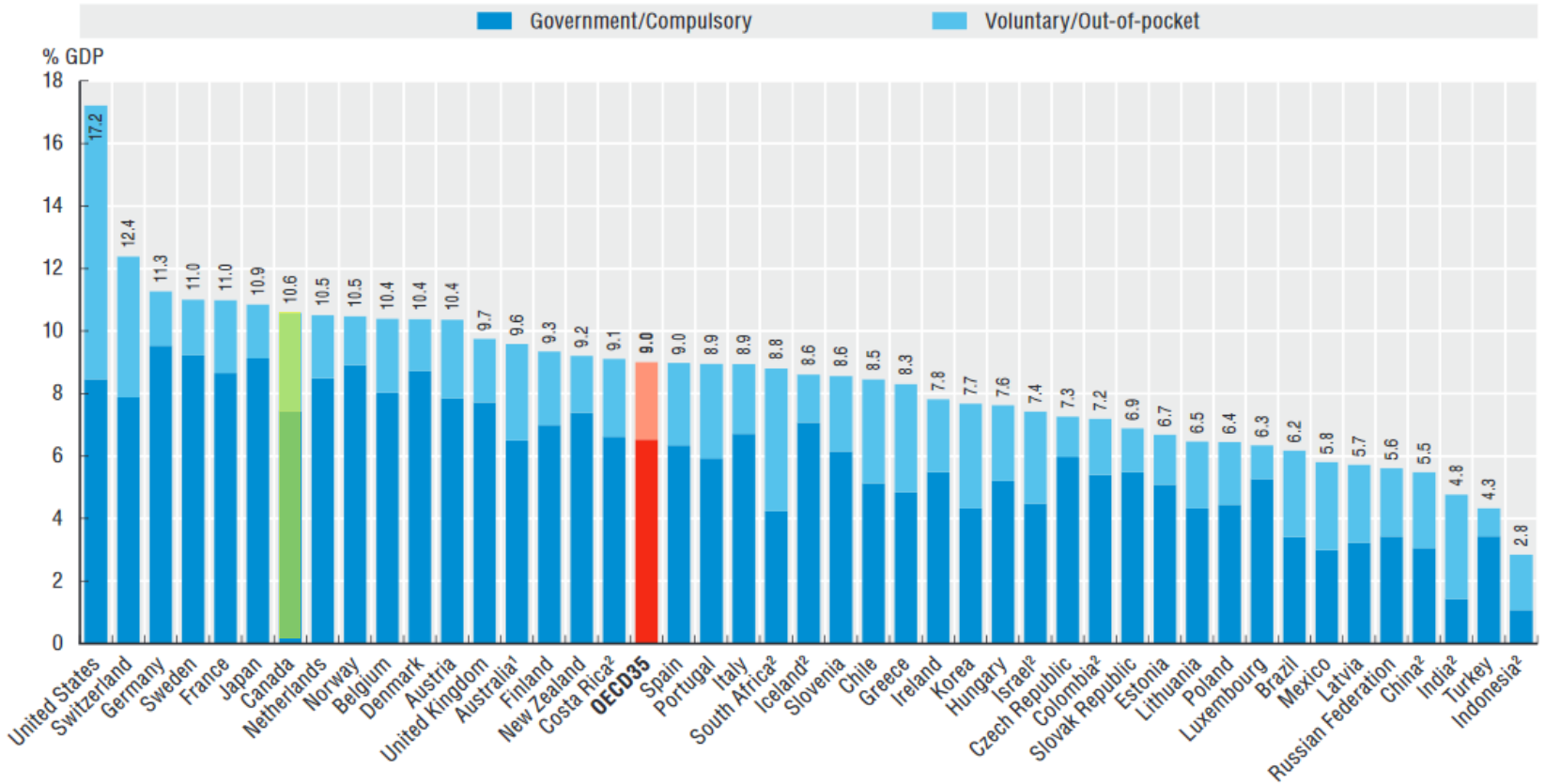
- Do we pay too much in ***taxes***?
  - What is ***too much***?
  - And what is ***too little***?
- Too much or too little are ***relative*** terms, i.e., compared to something else:
  - Relative to the ***services*** we receive for the ***taxes*** we pay
  - Relative to what other ***countries*** pay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

TAXES AS PERCENTAGE OF GDP (2016)

Country	Taxes as % of GDP	Country	Taxes as % of GDP
Austria	42.7	Korea	26.3
Belgium	44.2	Mexico	17.2
Canada	**31.7**	Netherlands	38.9
Chile	20.4	New Zealand	32.1
Czech Republic	34.0	**Norway**	**38.0**
Denmark	**45.9**	Poland	33.6
Finland	**44.1**	Portugal	34.4
France	45.3	Slovak Republic	32.7
Germany	37.6	Spain	33.5
Greece	38.6	**Sweden**	**44.1**
Hungary	39.4	Switzerland	27.8
Iceland	36.4	Turkey	25.5
Ireland	23.0	United Kingdom	33.2
Israel	31.3	**United States**	**26.0**
Italy	42.9	OECD - Average	34.3

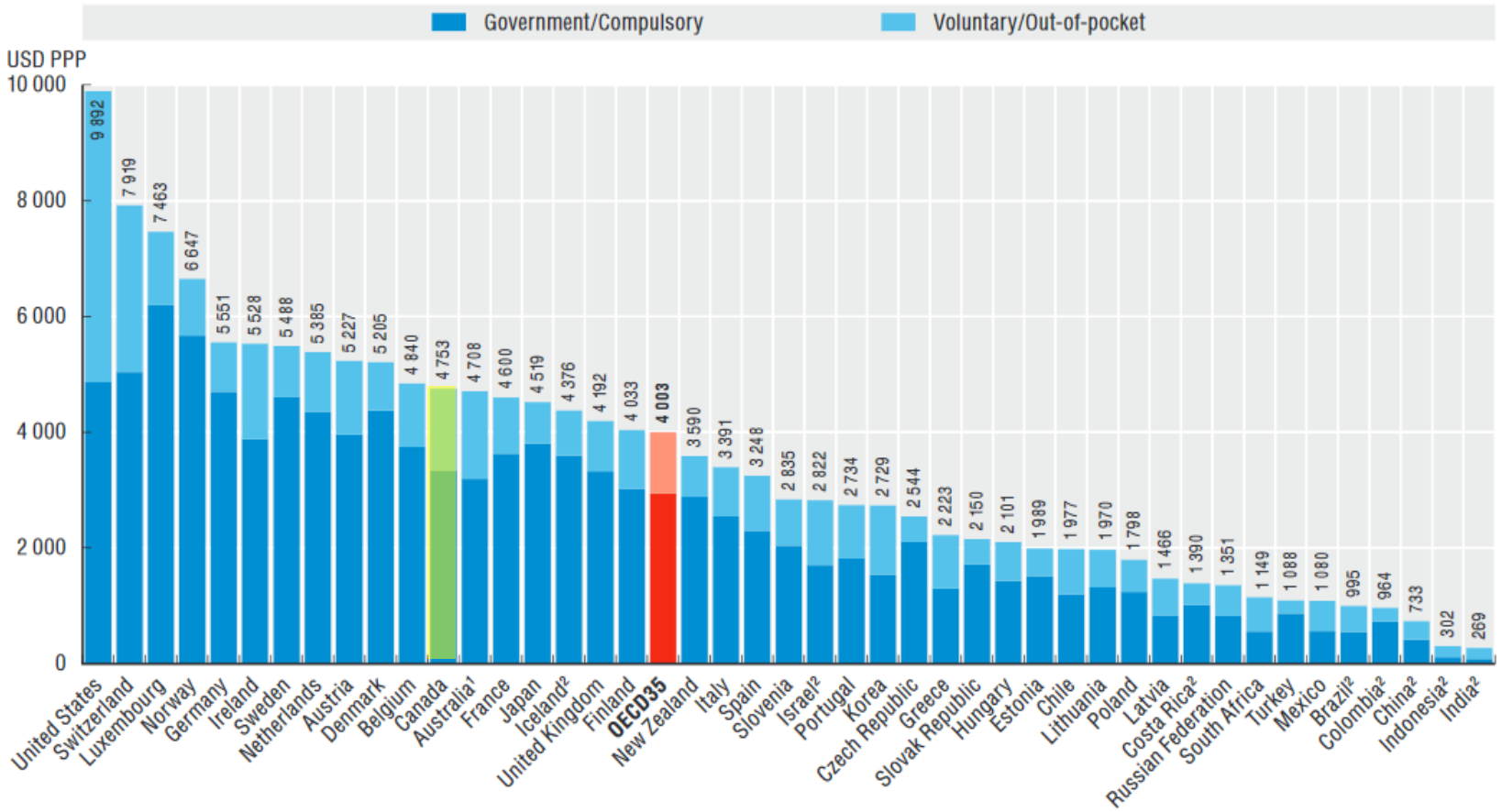
Source: *OECD Tax Statistics*, 2017.

Health Expenditure as Percentage of GDP (2016)



Source: OECD, *Health at Glance 2017 – OECD Indicators*, p. 135.

HEALTH EXPENDITURE PER CAPITA (2016)



Source: OECD, *Health at Glance 2017 – OECD Indicators*, p. 133.

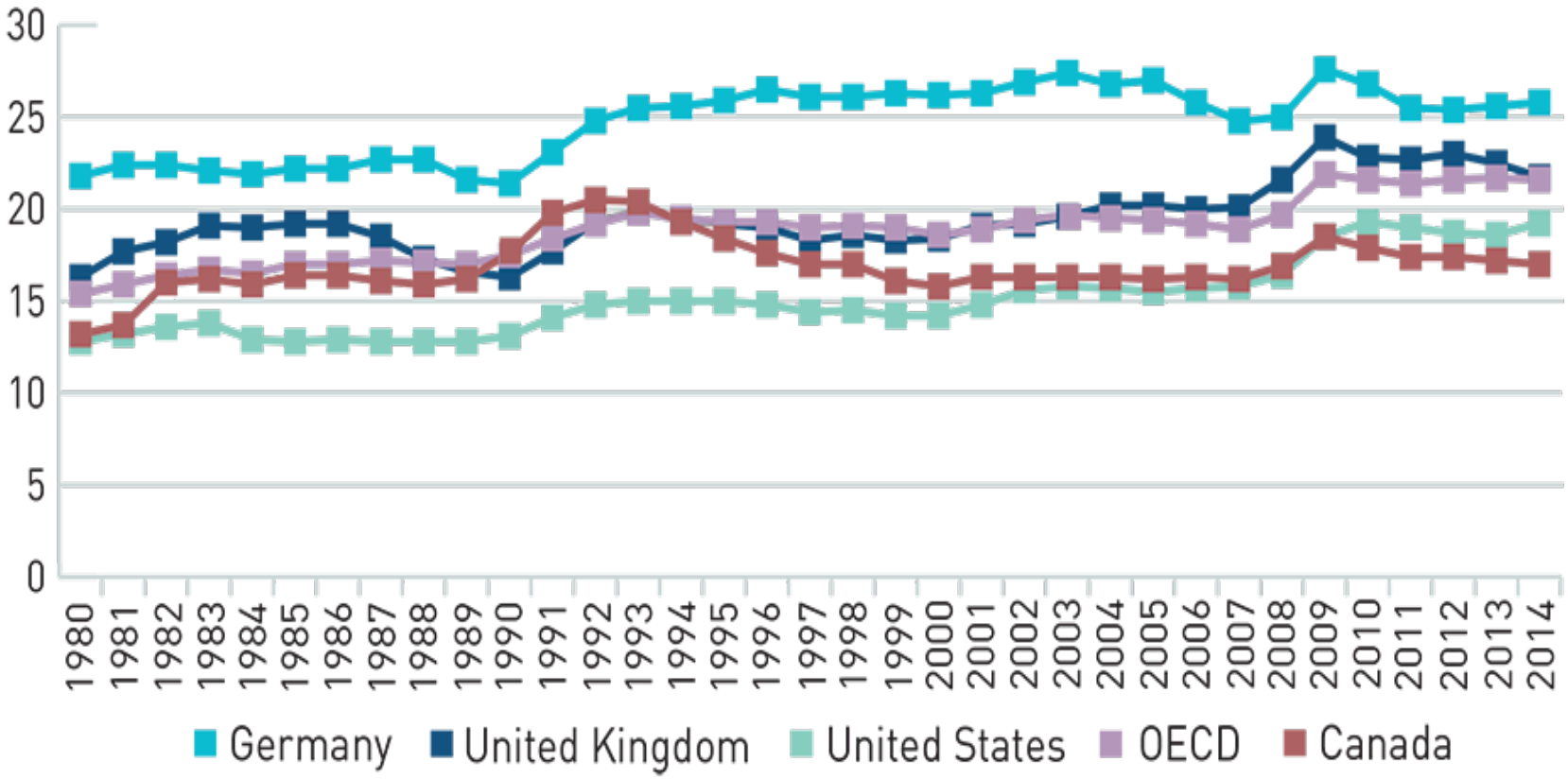
Myth #4 – Public Sector Is Less Efficient

- 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

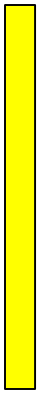
- Canada does spend a significant amount (total and per capita) on social services
  - But not so much relative to other OECD countries
- Look at the following table showing public social spending as a percentage of GDP
  - At the present time, we are spending even less than the US (as a percentage of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

PUBLIC SOCIAL SPENDING (% OF GDP)



Source: Mowat Centre based on OECD Social Expenditure Database.

PUBLIC SOCIAL SPENDING (% OF GDP)



Source: OECD Social Expenditure Database, 2018.

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
Sweden	**2**	**5.56**	United Kingdom	12	5.25
Singapore	3	5.48	Taiwan, China	13	5.21
United States	**4**	**5.43**	**Norway**	**14**	**5.14**
Germany	5	5.39	France	15	5.13
Japan	6	5.37	Australia	16	5.11
Finland	**7**	**5.37**	Qatar	17	5.10
Netherlands	8	5.33	Austria	18	5.09
Denmark	**9**	**5.32**	Belgium	19	5.07
Canada	**10**	**5.30**	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
Denmark	**1**	**92**	Iceland	12	79
New Zealand	2	91	United Kingdom	14	78
Finland	**3**	**89**	Belgium	15	76
Sweden	**4**	**87**	Japan	15	76
Norway	**5**	**86**	Barbados	17	74
Switzerland	6	86	Hong Kong	17	74
Singapore	7	84	Ireland	17	74
Netherlands	8	83	**United States**	**17**	**74**
Luxembourg	9	82	Chile	21	73
Canada	**10**	**81**	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
Denmark	**1**	**7.693**	Israel	11	7.301
Norway	**2**	**7.655**	Costa Rica	12	7.257
Switzerland	3	7.650	New Zealand	13	7.221
Netherlands	4	7.512	UAE	14	7.144
Sweden	**5**	**7.480**	Panama	15	7.143
Canada	**6**	**7.477**	Mexico	16	7.088
Finland	**7**	**7.389**	**United States**	**17**	**7.082**
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.