

# Introductory Macroeconomics

Lecture 8: fiscal policy (in ordinary times)

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## Fiscal Policy (in Ordinary Times)

# This Lecture

- Fiscal policy in ordinary times
  - basic fiscal policy concepts
  - more on fiscal policy and demand management
  - government budget constraint, debts and deficits
- BOFAH chapter 8

# Basic Fiscal Policy Concepts

- Government decisions to spend, raise revenue, and issue debt
- Expenditure
  - G – government purchases of goods and services  
*schools, police, courts, military, roads*
    - transfers to households and firms *(no goods and services received)*.  
*age pension, newstart, parental support insurance program Jobseeker*
    - interest payments to holders of government debt *(increase spend without raising debt)*
- Revenue
  - personal and company income taxes, GST, excises, land taxes
- Levels of government (commonwealth, state, local)

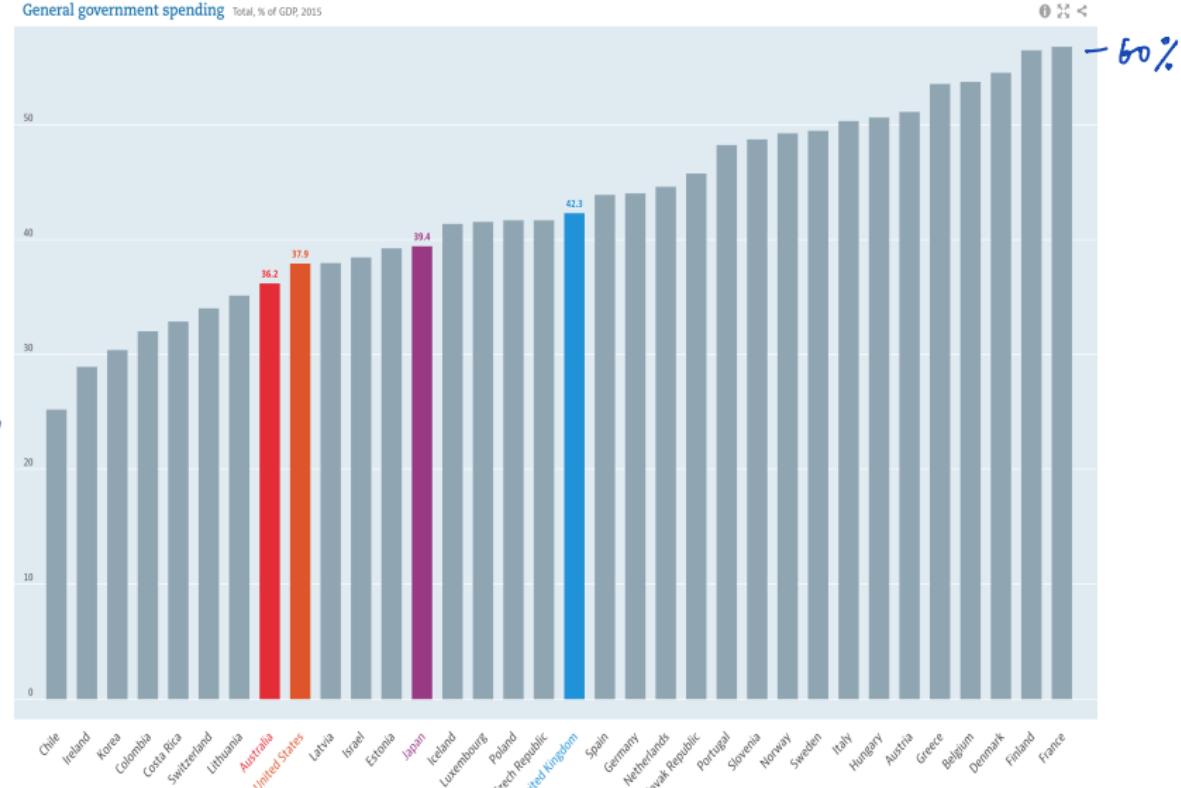
# Government Expenditure Australia

Major categories, 2017/18, billions of dollars

	Commonwealth	Total	spending
Defence	32.0	32.0	→ no defence by state or local
Education	37.3	99.6	b) b → most government
Health	76.8	129.6	turns out being state level spending
Social protection	158.9	178.1	
Transport	9.4	32.7	
Economic affairs	20.7	30.1	
:			
Total	463.9	647.1	

OEC  
spending  
%  
- 60%

# Government Expenditure Across Countries



# Government Revenue Australia

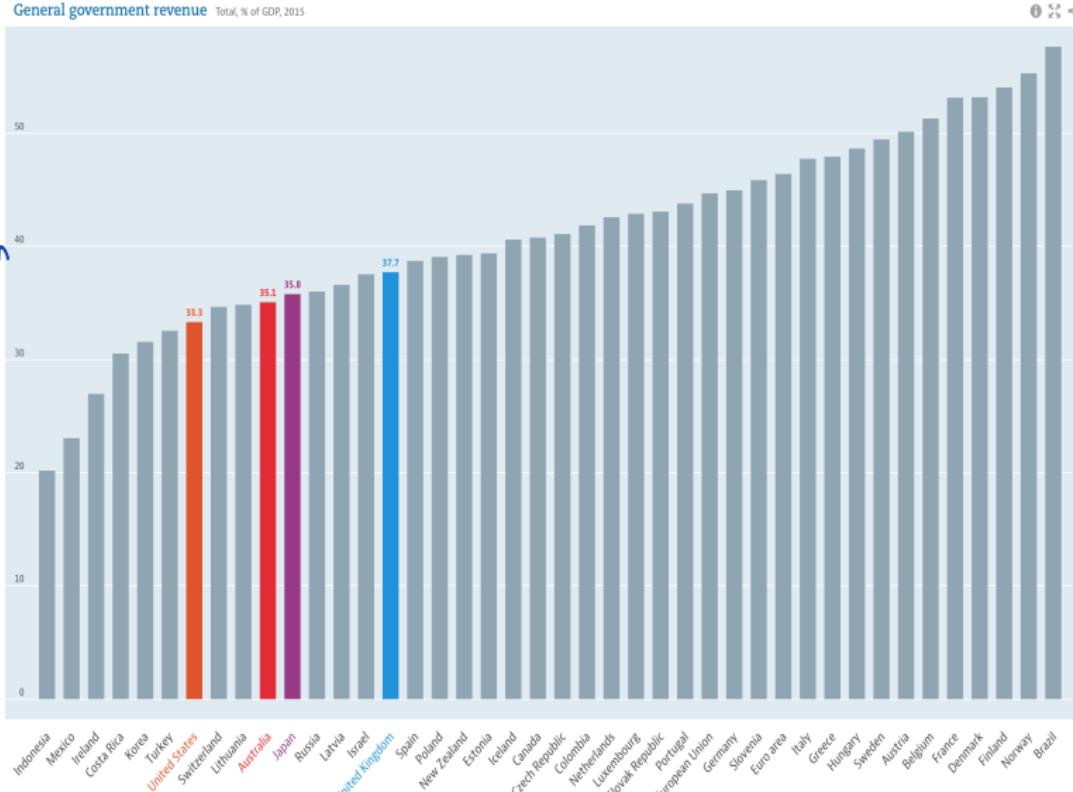
Major categories, 2017/18, billions of dollars

	Commonwealth	Total
Income, profits and capital gains	312.4	312.4
Payroll → firm's payroll	1.1	24.7
Property 财产	0.0	30.3
GST etc goods and services tax	106.5	141.5
⋮		
(②) difference		
Total	427.2	528.6
	80%	vertically fiscal imbalance ②

when you purchase a property, you need to pay tax on transaction

# Government Revenue Across Countries

revenue  
Y-axis  
→ OECD  
organization of  
economy cooperation  
and development



## Fiscal Policy and Demand Management

# Fiscal Policy and Demand Management

- Keynes argued should use fiscal policy to stabilise business cycle

$$Y_t - Y_t^* < 0$$

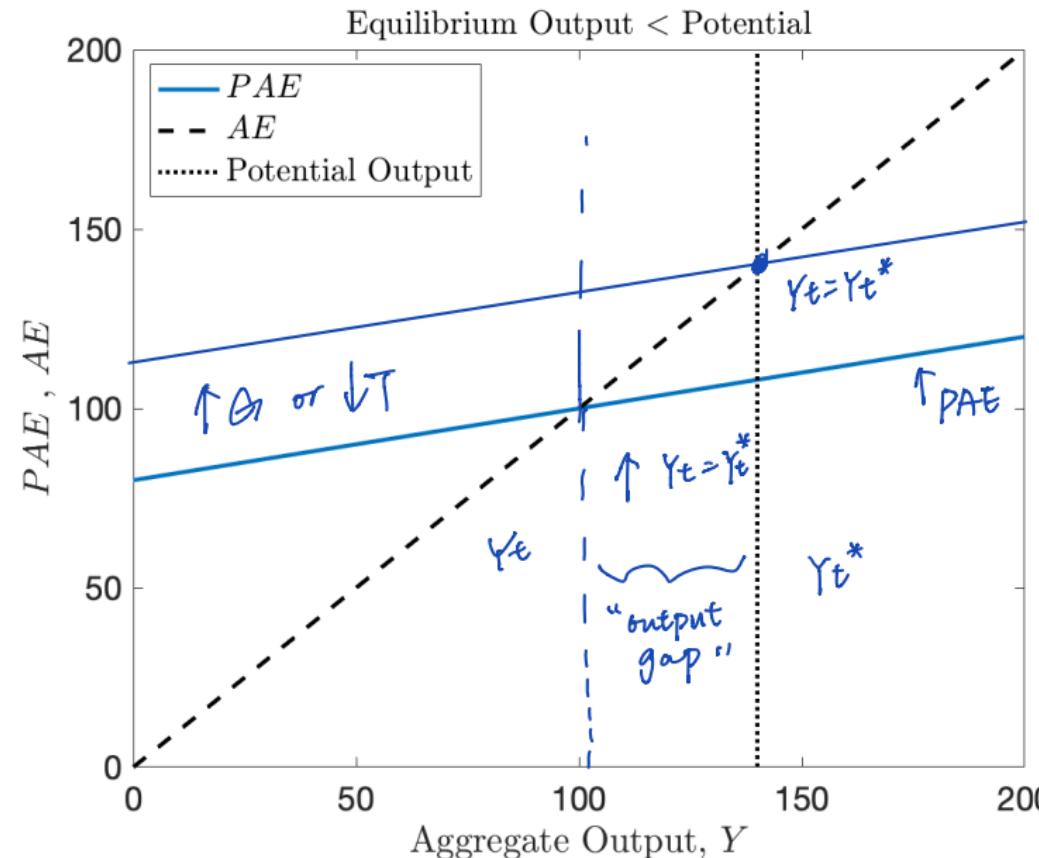
signal government to increase  $Y_t$  to  $Y_t^*$

- Use  $G$  and  $T$  to offset temporary shortfalls in private spending

$\downarrow$   
purchase  
goods and  
service

$\downarrow$   
increase  
disposable  
income

# Fiscal Policy and Demand Management



# Limits of Fiscal Policy in Demand Management

government spending  
has to be founded by issuing  
public debts

- Possible side-effects

- changes in taxes may distort incentives to work and invest

- ② deficit-financed government spending may push up interest rates,  
'crowding out' private sector investment

- Practical concerns

- lags in making and implementing decisions
- lags between decision and time spending effects economy
- tension between getting timing right and most worthwhile spending  
(e.g., infrastructure timing)
- waste spend on less desirable project

a lot of borrowing by government  
higher return to hold debts  
for private sector  
parliament need to vote, spending hit the economy  
when it is recovering rather  
than period of crisis

## Government Budget Constraint

## Government Budget Constraint

- Period-by-period government budget constraint

$$\underbrace{G_t + iB_t + \text{Transfers}_t}_{\text{uses of funds}} = \underbrace{\text{Taxes}_t + (B_{t+1} - B_t)}_{\text{sources of funds}}$$

$B_{t+1} - B_t = \text{new borrowing}$

if  $B_{t+1} > B_t$  increase in borrowing  
if  $B_{t+1} < B_t$  decrease - - -

where

$G_t$  = government purchases of goods and services

$iB_t$  = interest payments on existing government debt

$B_{t+1} - B_t$  = change in government debt

$\text{Transfers}_t$  = transfer payments from government

$\text{Taxes}_t$  = tax revenue

- To simplify notation

*gross taxes*

$T_t = \text{Taxes}_t - \text{Transfers}_t$  = net taxes

## Government Budget Constraint

- With  $T_t$  denoting net taxes (taxes minus transfers)

$$G_t + iB_t = \underset{\substack{\text{net taxes} \\ \downarrow}}{T_t} + (B_{t+1} - B_t)$$

- What is the relationship *debt* and the government *deficit*?

# Debts and Deficits

- The amount of government *debt* is  $B_t$
- Government *deficit* is the *change* in government debt

$$B_{t+1} - B_t = G_t - T_t + iB_t$$

- Hence

*→ borrowing more*

$$\text{deficit positive } B_{t+1} - B_t > 0 \Leftrightarrow \text{debt increasing}$$

*→ "surpluses"*

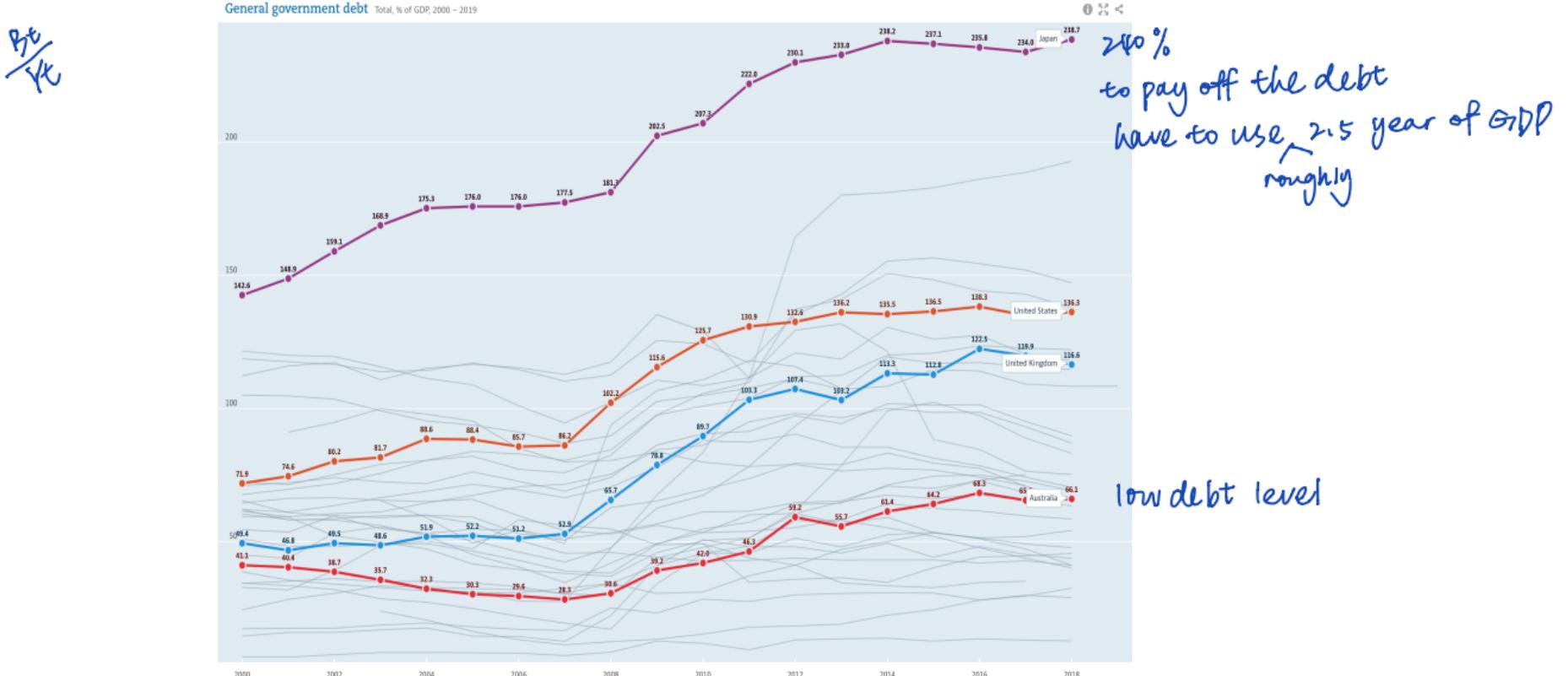
$$\text{deficit negative } B_{t+1} - B_t < 0 \Leftrightarrow \text{debt decreasing}$$

- Total (secondary deficit)*
- Deficit is sum of *primary deficit*  $G_t - T_t$  plus *interest payments*  $iB_t$  on existing government debt

# Government Deficits Relative to GDP

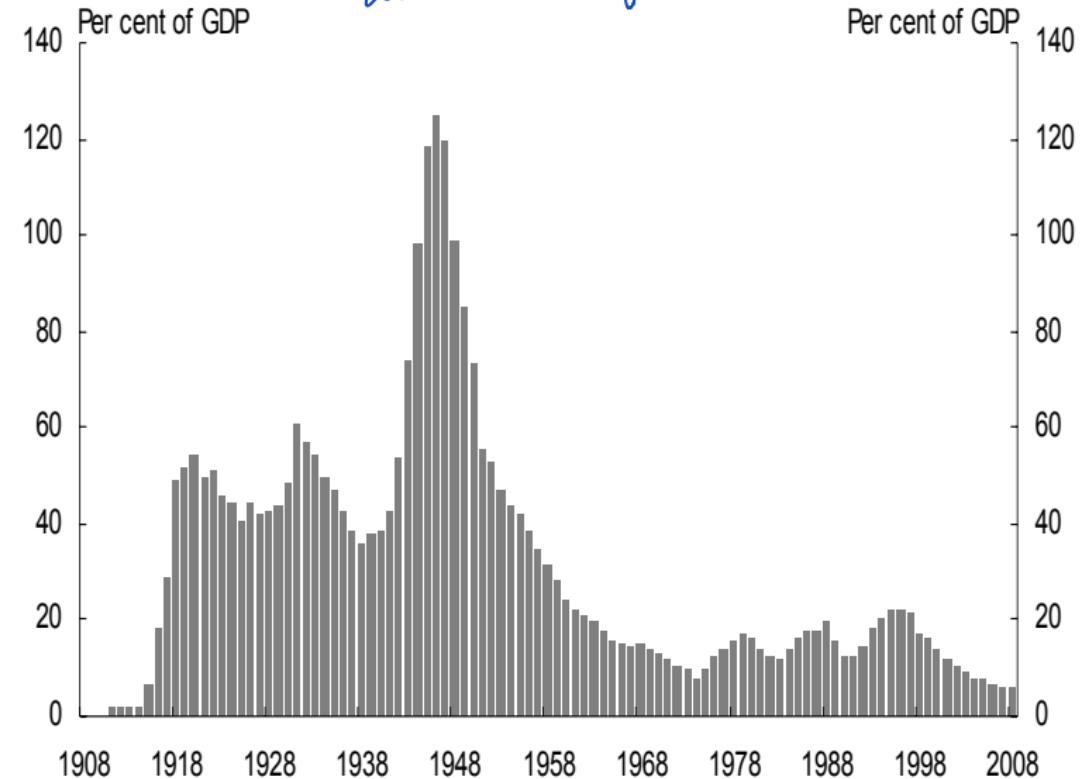


# Government Debt Relative to GDP



# Government Debt Relative to GDP

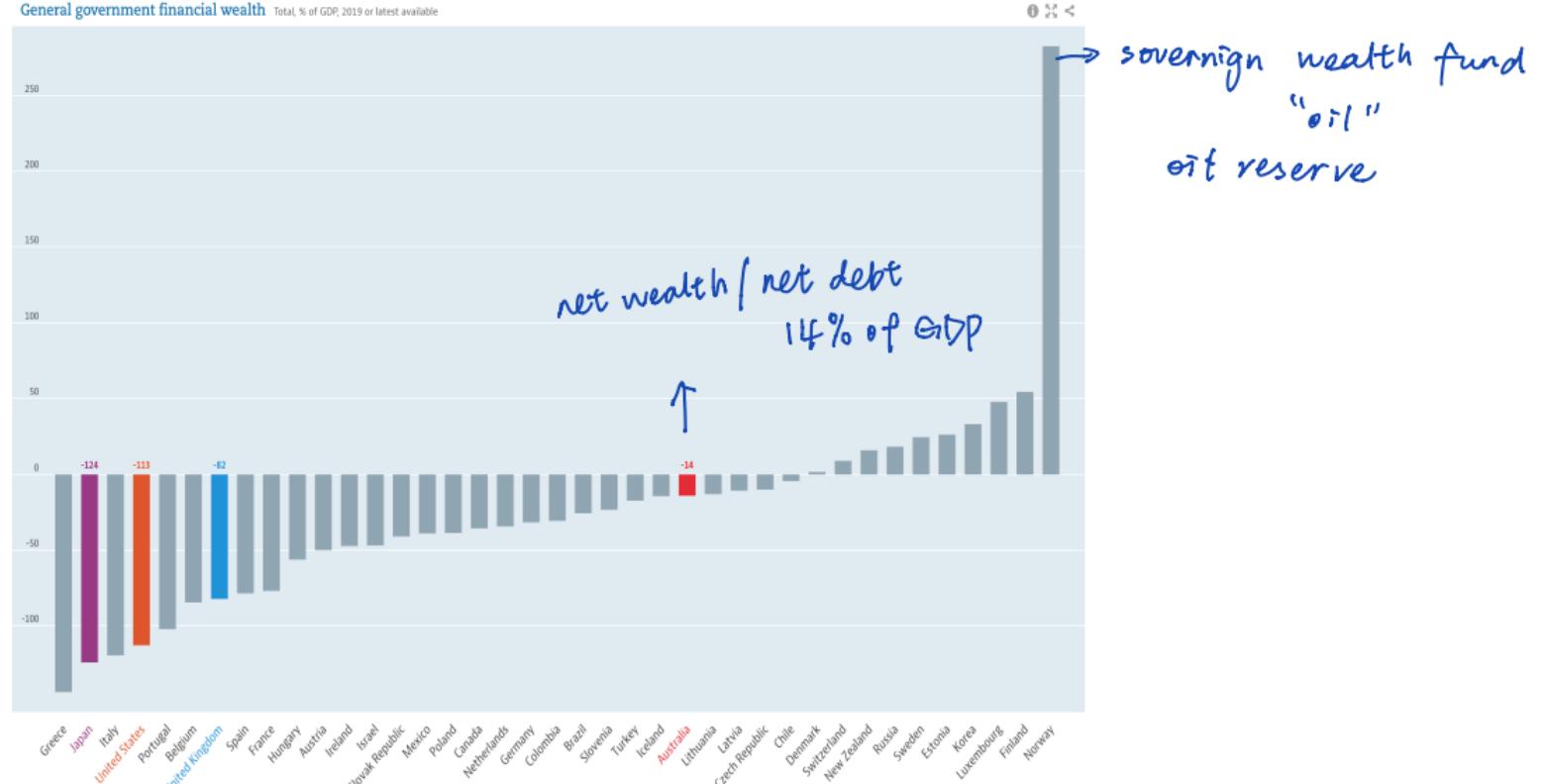
*commonwealth government debt + total government debt*



## Gross Debt vs. Net Debt

- More precisely, this is *gross government debt*
- What if we look at the asset side of balance sheet?
- Assets minus liabilities gives a measure of government *net wealth*

# Government Net Wealth Relative to GDP



# Can Governments Keep Accumulating Debt?

- Government period-by-period budget constraint

$$B_{t+1} - B_t = G_t - T_t + iB_t$$

*issue debt*                    *deficit*                    *flow budget constraint*

- Government borrowing today implies interest cost tomorrow
- To get complete picture, need to *rollover* the period-by-period budget constraint
- Result is the government's '*intertemporal budget constraint*'

## Digression on Present Values

- If interest rate is  $\underline{i} > 0$ , *present value* of a dollar in  $t$  periods

$$\left(\frac{1}{1+i}\right)^t \times \$1 \Rightarrow \begin{array}{l} \text{(the present value of a \$1 in period } t\text{) in period 0} \\ \text{at } t=0 \end{array}$$

$\frac{1}{1+i}$        $\frac{1}{(1+i)}$        $(\frac{1}{1+i})^2$        $\dots$        $(\frac{1}{1+i})^t$

- Present value of a sequence  $\{X\} = \{X_0, X_1, X_2, \dots\}$  is

$$\text{PV}(\{X\}) = \underbrace{X_0}_{\text{the \$1 in period 1, at } t=0} + \underbrace{\left(\frac{1}{1+i}\right)^1 X_1}_{\text{the \$1 in period 2, at } t=1} + \underbrace{\left(\frac{1}{1+i}\right)^2 X_2}_{\text{the \$1 in period 3, at } t=2} + \dots$$

$$= \sum_{t=0}^{\infty} \left(\frac{1}{1+i}\right)^t X_t$$

## Intertemporal Budget Constraint

- With some algebra (omitted), government's intertemporal budget constraint can be written in the form

$$B_0 = \frac{1}{1+i} PV(\{T - G\}) > 0$$

*fiscal banking of issued debt  $B_0$  (future surplus)*

*at some point, surpluses are required to pay down debt*

*amount of debt in year 0  $B_0 > 0$  (more variability than asset)*

- Government debt outstanding cannot be more than present value of future primary surpluses

– debt is current promise to make future payments

– current deficit must be offset by future surpluses

## Next Lecture

- Fiscal policy in extraordinary times
  - coronavirus pandemic
- Introducing monetary policy in normal times
  - basic monetary policy concepts
- BOFAH chapter 10