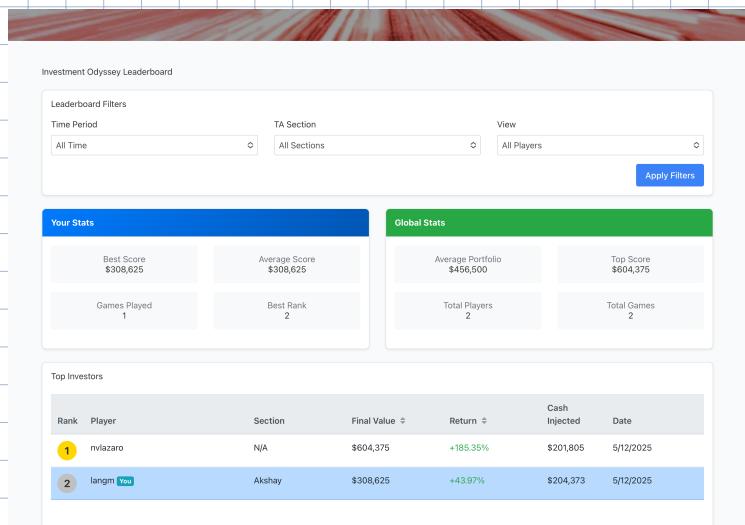


# Econ 2 - Lecture 13 - 5/14/25

Lecture Quiz 6 Released today, due Monday, May 19<sup>th</sup>

## Week 8 Activity: Leaderboard



Today: fiscal Policy  $\rightarrow$  Deficits & Debt (Chapter 5)

Last Class:  $\Delta G \Rightarrow$  Expenditure Multiplier =  $\frac{1}{1-MPC}$   
Missing round 1  $\leftarrow \Delta T =$  Tax Multiplier =  $-\frac{MPC}{1-MPC}$  (smaller than expenditure mult.)  
Tax Cut Opinion Poll

### Tax Cut Opinion

⌚ 1:00

Which group should pay fewer taxes?



Connect tax cut decision to  $Y = AE$   
Option 1: Give tax cuts to low-income households

Benefit:

→ Big percentage increase in take-home income

If income = \$30K/yr, taxes = \$4K/yr

→ Fraction of  $Y-T$  towards consumption

→ High  $mpc \rightarrow mpc = 0.95 \rightarrow \text{Tax Multiplier} = \frac{-0.95}{1-0.95}$

$$\begin{array}{rcl} \text{high } & \text{limited} \\ \swarrow & \searrow \\ \text{Cost? } \Delta Y = -\frac{mpc}{1-mpc} \Delta T & & = -19 \end{array}$$

Cost?  $\Delta Y = -\frac{mpc}{1-mpc} \Delta T$

Limitation on the size of  $\Delta T$

Option #2: Tax Cuts to the rich / high-income

Benefits:

→ Small business → hire more workers!

→ Income = \$1 million  $\Rightarrow$  Federal Taxes = \$300K

$\Delta T$  can be very large

Costs:

→ Strong assumption that corporations reinvest in workers

→  $mpc$  is relatively low  $\Rightarrow mpc = 0.5$ , tax  $= \frac{-0.5}{1-0.5}$

$$= -1$$

Biggest Concern with fiscal Policy

→ Very costly

Economic Crisis  $\rightarrow$  fiscal Policy is enacted quickly  
Bailout Bill  $\Rightarrow$   $\$15$  billion in profit for the Treasury

American Reinvestment & Recovery Act (ARRA)

$\rightarrow$  Stimulus Package

$$\Delta G > 0, \Delta T < 0$$

$$\Delta G = 500 \text{ bil}, \Delta T = -300 \text{ bil}$$

$$\Delta Y = \frac{1}{1-\text{MPC}} 500 \text{ bil} = \frac{1}{1-0.5} 500 \text{ bil} \approx 1000 \text{ bil} = 1 \text{ Tril}$$

$\uparrow$  assume 0.5

$$\Delta Y = \frac{-\text{MPC}}{1-\text{MPC}} (-300 \text{ bil}) = \frac{-0.5}{1-0.5} (-300 \text{ bil}) = 300 \text{ bil}$$

$$\text{Total } \Delta Y = 1300 \text{ bil} = 1.3 \text{ Trillion}$$

## Covid-19 Pandemic Stimulus

March 2020: CARES Act  $\rightarrow$  2.2 Trillion }  
December 2020:  $\sim \$1.0$  Trillion  
March 2021:  $\sim 2.0$  Trillion }  $\sim 5$  Trillion

for every  $\Delta G > 0$  or  $\Delta T < 0$  must be paid for

2020:  $G > T \rightarrow \$3.3$  Trillion

2021:  $G > T \rightarrow \$2.7$  Trillion

2022:  $\$1.38$  T deficit

2023: 1.7T

2024: 1.83T

2025: Annualized rate =  $\$2.5T$

Deficit =  $G - T > 0$ ,  $G$  = All government spending

Deficits  $\rightarrow$  Debt

Debt = Sum of Deficits ( $G - T$ ) =  $\sum (G - T)$

3 Yr Example:

$$\begin{aligned} \text{Debt} &= (G_1 - T_1) + (G_2 - T_2) + (G_3 - T_3) \\ &= 50 \quad \quad \quad = 100 \quad \quad \quad = -75 \end{aligned}$$

$$\text{Debt} = 50 + 100 - 75 = 75 \quad \quad \quad \text{Surplus}$$

\$ 36.85 Trillion Debt in the US!

What about debt actually matters?

Facts about the National Debt

Fact #1: US Gov't DOES NOT owe 36.8T  
to lenders!,  $\therefore$

28.8T

7.4T

Total Debt = Public Debt + Intragovernmental

= Borrowing  
from outside  
the gov't

Holdings

$\Rightarrow$  Borrowing from  
a different sector  
of an institution

$\rightarrow$  Social Security  
Trust Fund,  
Pension funds,  
Dept. of Def.

Fact #2: We DO NOT need to pay back debt

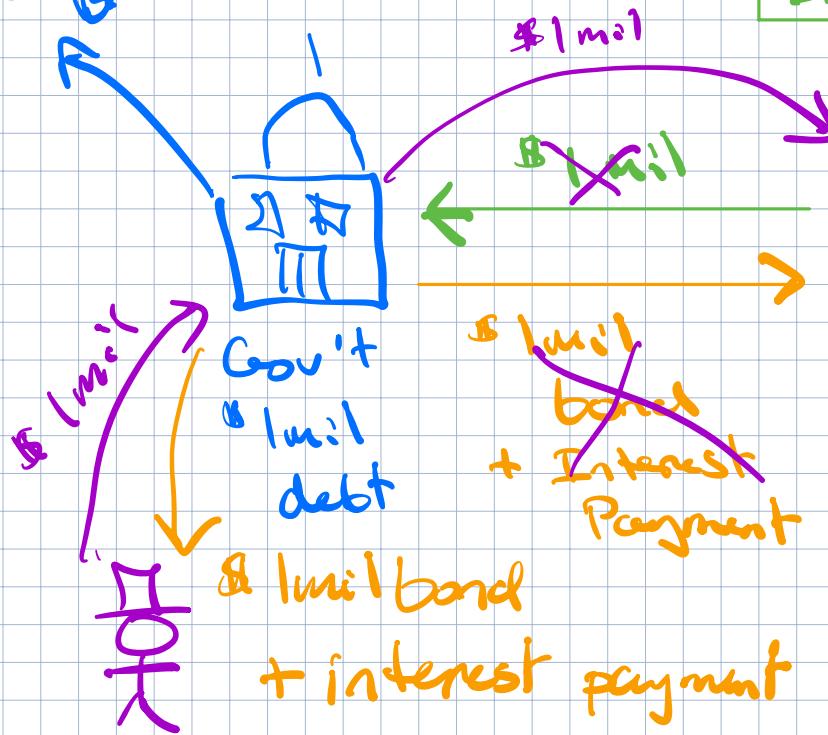
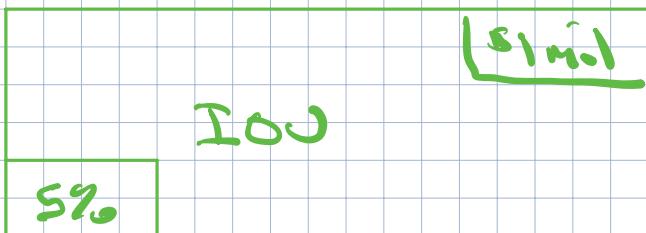
Setting: Gov't borrows \$1 million from lenders  
→ Debt

Government Bonds: Vehicle for gov't to borrow

"I owe you" =

Build Bridge



→ Incentivize investor to lend  
→ paying interest on debt

In one year, investor wants "1 mil back"  
→ Gov't spent the \$!  
→ Roll over debt  
→ finding a new investor

Government can roll over debt  
as long as investor believe they will  
get paid back

Do govt ever struggle to find a lender?

How does the govt pay interest on debt?

Tax Revenue:

Public Debt = \$1 mil Interest Rate = 5%

Nominal GDP = \$5 million (Income)

$$\begin{aligned} \text{Interest Payment} &= \text{Interest Rate} \times \text{Debt} \\ \text{on Debt} &= 0.05 \times 1 \text{ mil} = \$50,000 \end{aligned}$$

As long as govt generates 50k in tax revenue,  
can hold 1 million debt indefinitely

Tax at a rate that generates 50k

Tax Revenue  $\geq$  Interest Payment

Tax Rate  $\times$  Nominal GDP  $\geq$  Interest Payment

$$\begin{aligned} (\text{min.}) \text{ Tax Rate} &= \frac{\text{Interest Payment}}{\text{Nom. GDP}} \times 100 \\ &= \frac{50,000}{5,000,000} \times 100 = 1\% \end{aligned}$$

	<u>Yr 1</u>	<u>Yr 2</u>
Nom. GDP	200,000	300,000
Debt	100,000	200,000
Int. Rate	5%	5%
Price Level	100	120

Min. Tax Rate?

$$\text{Yr 1: min. tax rate} = \frac{\text{int. rate} + \text{debt}}{\text{nom. GDP}} \times 100$$

$$= \frac{5\% + 100,000}{200,000} \times 100$$

$$= 2.5\%$$

$$\text{Yr 2: min. tax rate} = \frac{5\% \times 200,000}{300,000} \times 100$$

$$=$$