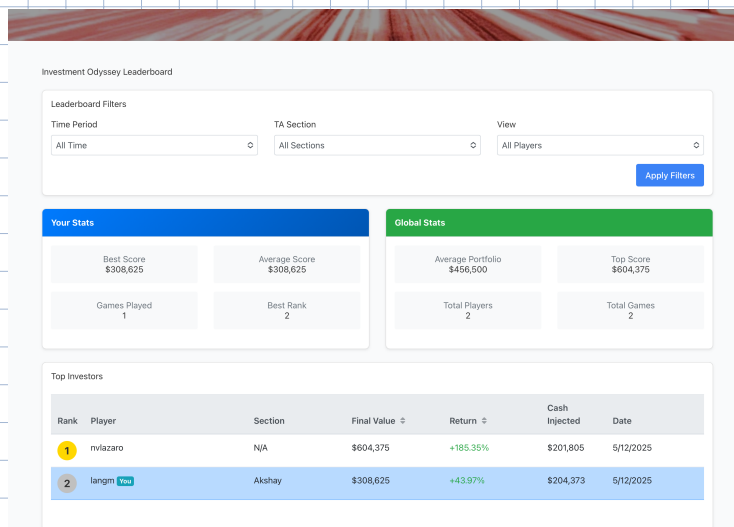


Econ 2 - Lecture 13 - 5/14/25

Lecture Quiz 6 Released today, due Monday, May 19th

Week 8
Activity
Leaderboard



Today: Fiscal Policy → Deficits & Debt (Chapter 5)

Last Class: $\Delta G \Rightarrow$ Expenditure Multiplier = $\frac{1}{1-MPC}$

Missing
round 1

← $\Delta T =$ 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?

A	The rich (more than \$350,000 per year)	36
B	Upper-middle income (between \$100,000 and \$350,000 per year)	24
C	Middle income (between \$50,000 and \$100,000)	76
D	Lower income (between \$30,000 and \$50,000)	64
E	Vulnerable households (less than \$30,000)	238

Connect tax cut decision to $Y = AE$

Option 1: Give tax cuts to low-income households

Benefits:

→ Big percentage increase in take-home income

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

→ Fraction of $Y - T$ towards consumption

→ High mpc → $mpc = 0.95 \rightarrow \text{Tax Multiplier} = \frac{-0.95}{1-0.95}$
 $= -19$

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

Limitation on the size of ΔT

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

Benefits:

→ Small business → hire more workers!

→ Income = 1 million → Federal Taxes = 350K

ΔT can be very large

Costs:

→ Strong assumption that corporations reinvest in workers

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

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

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

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

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

\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 Trillion

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

2022: \$1.38 T deficit

2023: 1.7 T

2024: 1.83 T

2025: Annualized rate = \$2.5 T

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

Deficits \rightarrow Debt

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

3 Yr Example:

$$\text{Debt} = (G_1 - T_1) + (G_2 - T_2) + (G_3 - T_3)$$
$$= 50 \qquad \qquad \qquad = 100 \qquad \qquad \qquad = -75$$

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

↑ 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! 😊

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

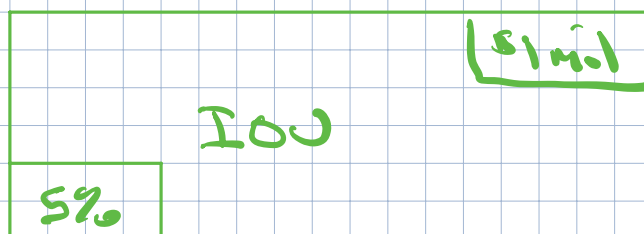
\rightarrow Social Security
Trust Fund,
Pension funds,
Dept. of Def.

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

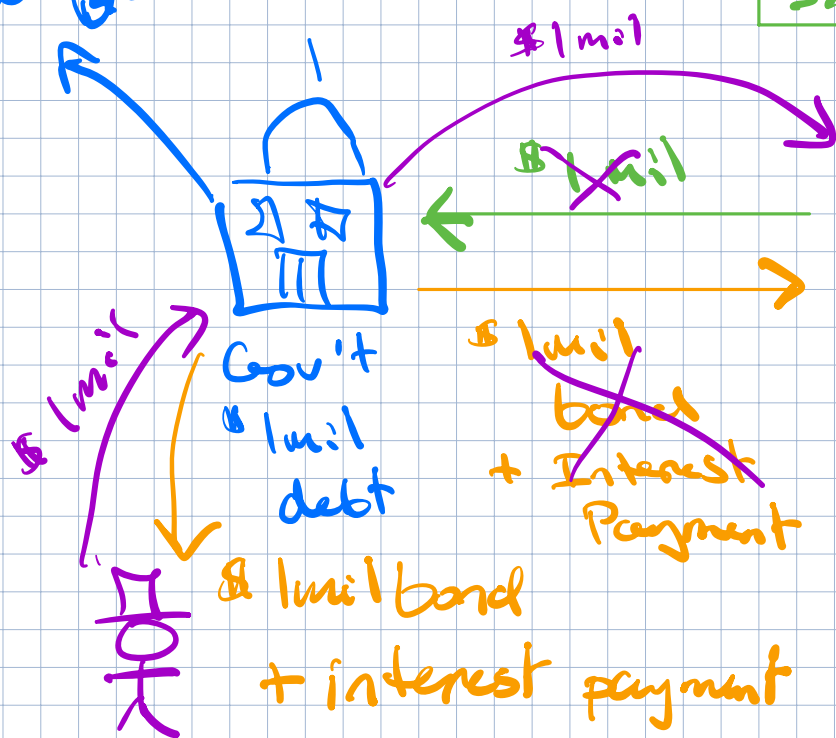
Setting: Gov't borrows \$1 million from lenders
→ Debt

Government Bonds: vehicle for gov't to borrow

"I owe you" =



Build Bridge



Investor → 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 believes they will
get paid back

Do gov't ever struggle to find a lender?

How does the gov't pay interest on debt?

Tax Revenue:

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

Nominal GDP = \$5 million (Income)

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

As long as gov't generates 50k in tax revenue,
can hold 1 million debt indefinitely

Tax at a rate that generates 50k

$$\text{Tax Revenue} \geq \text{Interest Payment}$$

$$\text{Tax Rate} \times \text{Nominal GDP} \geq \text{Interest Payment}$$

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

	<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?

$$\begin{aligned}
 \text{Yr 1: min. tax rate} &= \frac{\text{int. rate} \times \text{debt}}{\text{nom. GDP}} \times 100 \\
 &= \frac{5\% \times 100,000}{200,000} \times 100 \\
 &= 2.5\%
 \end{aligned}$$

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