

Lecture 13: Fiscal Policy in the Classical Model

Reading Assignment: Chapter 7 (p. 184-189)

What is Fiscal Policy?

- Fiscal policy
 - Government policy that attempts to influence the direction of the economy through government spending or taxes
- In our model, it is the choice of G and T
 - G is government spending on goods and services
 - T are net taxes

Budgetary Consequences of Fiscal Policy

- $G-T > 0$ – government has a deficit and borrows loanable funds from the public
- $G-T < 0$ – government has a surplus and lends loanable funds to the public
- $G-T = 0$ – government runs a balanced budget

Types of Fiscal Policy

- Fiscal expansion
 - Increase in $G-T$
 - Increase in government deficit
- Fiscal contraction
 - Decrease in $G-T$
 - Reduction of government deficit

Types of Fiscal Expansion/Contraction

- Fiscal expansion/contraction refers to $G-T$, which can be driven by
 - Change in government spending G
 - Change in net taxes T
- In general, need to consider both cases separately, but typically will have similar effect

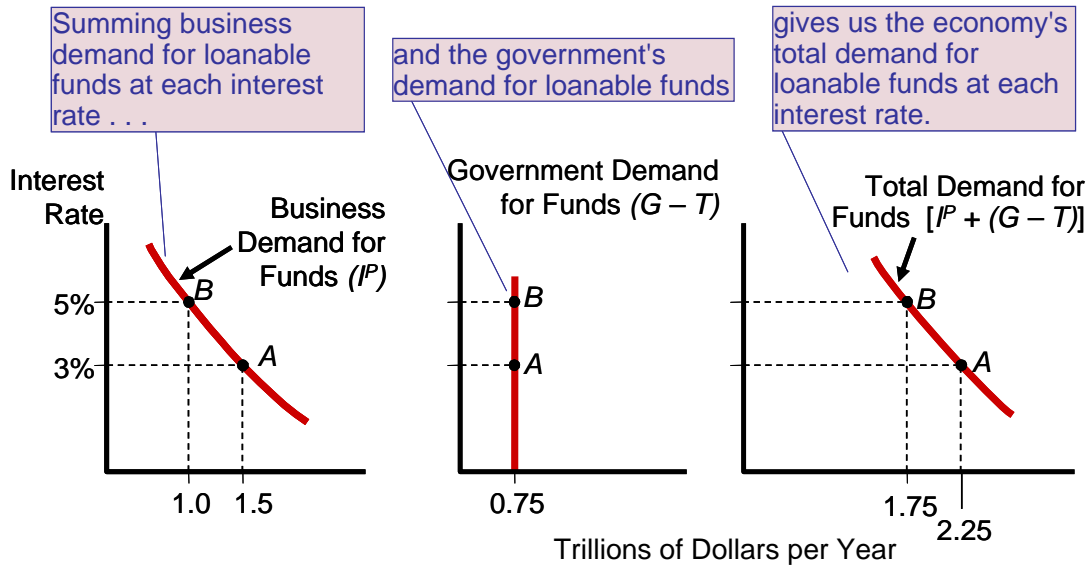
Effects of Fiscal Policy in the Classical Model
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Classical Model with Government

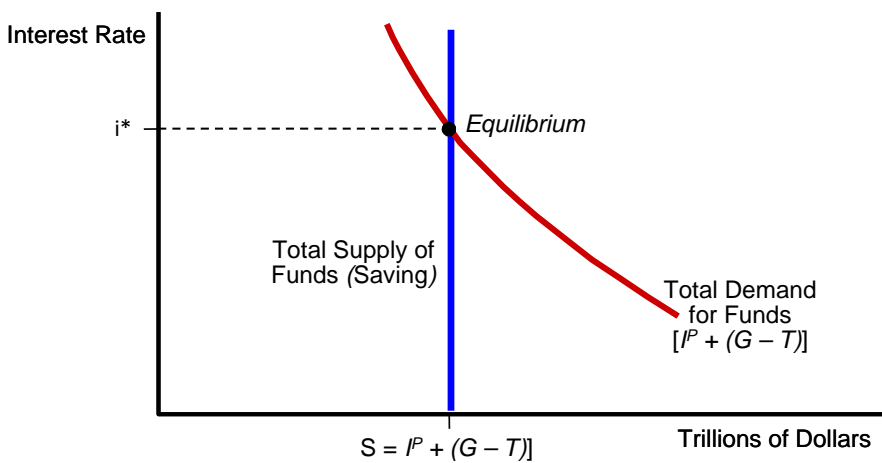
- Will use classical model with government and capital accumulation
- Key assumptions
 - Households save a constant fraction s of their after-tax income $Y-T$
 - Constant fraction d of capital depreciates after each period
 - Labor supply is fixed at some given level L

—Production function is given by $Y = \sqrt{KL}$

Demand for Loanable Funds with Government



Equilibrium in Loanable Funds with Government



Investment in Capital with Government

- When there is government, market clearing in the loanable funds market implies that investment in capital is given by $I = S - [G - T]$

Fiscal Policy in the Classical Model

- Consider the following example (referred to as benchmark case):
 - Initial fiscal policy: $G=2$, $T=2$ -- government runs balance budget $G-T=0$
 - Saving rate: $s=1/8$
 - Depreciation rate: $d=1/10$
 - Initial capital stock: $K = 10$
 - Employment: $L=10$
 - Output

Implications

- Output $Y=10$
- **Savings $S=s(Y-T)=1/8*(10-2)=1/8*8=1$**
- Depreciation of capital $dK=1/10*10=1$
- **Investment in capital $I=S-[G-T]=1-0=1$**
 - **Investment in new capital = depreciation of capital**
 - **The economy is in the long-run equilibrium**
- Consumption spending $C=Y-T-S=10-2-1=7$
- Total spending $C+I+G=7+1+2=10$

<h3>Experiment 1</h3>

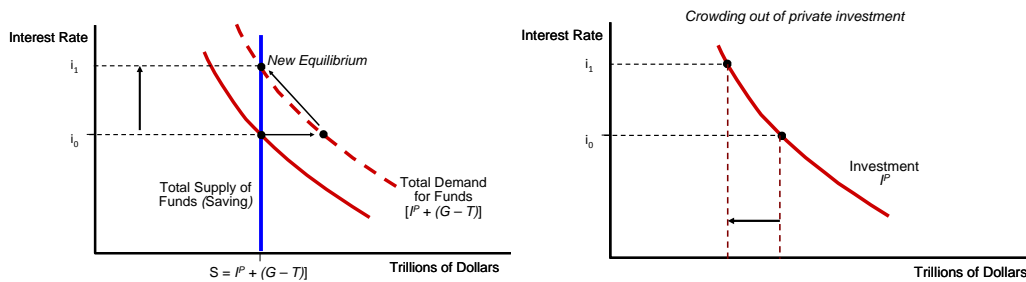
Fiscal Expansion Driven by an Increase in Government Spending

- Suppose G goes up from 2 to 3 and T stays the same
- Current output unchanged $Y=10$
- Savings $S=s(Y-T)=1/8*(10-2)=1/8*8=1$
- Depreciation of capital $dK=1/10*10=1$
- **Investment in capital: $I=S-[G-T]=1-1=0$**
 - **Investment in new capital < depreciation of capital**
 - **Capital and output will gradually fall over time**
- Consumption spending $C=Y-T-S=10-2-1=7$
- Total spending $C+I+G=7+0+3=10$

Key Take Away

- Increase in G leads to 1-to-1 crowding out of private investment
 - Government deficit, by increasing the demand for funds in the loanable funds market, leads to higher interest rates, and crowds out private investment
- Important caveat: if the government invests in capital: roads, highways, telecommunication, etc... our conclusions about fall in output and capital may not hold

Graphical Illustration



Experiment 2

Fiscal Expansion Driven by a Reduction in Net Taxes

- Suppose T falls from 2 to 1 and G stays the same
- Current output unchanged $Y=10$
- **Savings $S=s(Y-T)=1/8*(10-1)=1/8*9=9/8$**
- Depreciation of capital $dK=1/10*10=1$
- **Investment in capital: $I=S-[G-T]=9/8-1=1/8$**
 - Investment in new capital < depreciation of capital
 - Capital and output will gradually fall over time
- Consumption spending $C=Y-T-S=10-1-9/8=7\frac{7}{8}$
- Total spending $C+I+G=7\frac{7}{8}+1/8+2=10$

Key Take Away

- Increase in T *partially* crowds out private investment
 - Fall in T increases income, thus savings and the supply of funds in the loanable funds market; however, at the same time the increase in government deficit increases demand for loanable funds; because the increase in demand offsets increase in supply, the interest rates increase in the loanable funds market and crowds out private investment (but only partially)
 - Consumption spending C higher due to lower taxes and higher income

Final Conclusion

- Fiscal expansion crowds out investment and leads to lower accumulation of capital and lower output in the long-run
- Initially output and aggregate spending are unchanged, but both fall over time
- There are some minor differences between the effects of fiscal expansion through government spending versus reduction in taxes

Experiment 3

Government Expansion without Deficit

- Suppose both T and G go up from 2 to 3
- Current output unchanged $Y=10$
- **Savings $S=s(Y-T)=1/8*(10-3)=1/8*7=7/8$**
- Depreciation of capital $dK=1/10*10=1$
- **Investment in capital: $I=S-[G-T]=7/8-0=7/8$**
 - Investment in new capital < depreciation of capital
 - Capital and output will gradually fall over time
- Consumption spending $C=Y-T-S=10-3-7/8=6\frac{1}{8}$
- Total spending $C+I+G=6\frac{1}{8}+7/8+3=10$

Aside

- In general, fiscal policy may also have other important effects – the so called supply-side effects
- Example: higher income tax rate may discourage people to work, and results in lower labor supply
- In this course, we will abstract from supply-side effects of fiscal policy, and focus solely on its demand-side effects through expenditures

Current Policy Debate

- In 2008 US Congress enacted fiscal stimulus that will pay about \$700 to households with income below \$75,000
- The policy has been designed to counteract the slowdown in output growth (and the approaching recession)
- In our model, it is a fall in T, which leads to a fall in future output...
- Is this a reasonable policy? Soon will learn why the US government thinks the answer is “yes”. For now we know the criticism.