Suppose the UK Government borrows £20 billion more next year than this year.

a. Does the interest rate rise or fall?


c. How does the elasticity of supply of loanable funds affect the size of these changes?

d. How does the elasticity of demand for loanable funds affect the size of these changes?

e. Suppose households believe that greater Government borrowing today implies higher taxes to pay off the government debt in the future. What does this belief do to private saving and the supply of loanable funds today? Does it increase or decrease the effects you discussed in parts (a) and (b)?

Instructions for students

This short essay must be typed and should not be longer than 1000 words, excluding both graphs and the essay question itself (limits are strict); this is about 2 pages of text in Times New Roman, single spaced in font size 12. The ability to write succinctly is an important skill; and this essay will help you learn how to distil your ideas into a small number of key points. It is also useful preparation for the assessed coursework essay, which you will need to complete later in the semester.

I suggest that you answer this essay in parts: a., then b., etc.

You should hand your essay into your GTA in your week 18 class. They will then return your marked essay to you a couple of weeks later. You will not go over this essay in the class itself; you will have separate questions to discuss in the week 18 class (please see the module website). But, as well as getting a mark on this essay, I will also post "an answer" on the module website in due course. But this mark for the short (practice) essay does not count towards your end of year grade; it is simply practice for the other essay you will write later in the semester which is 20% of your end of year grade.
Model answer:

Figure 1 illustrates the effect of the £20 billion increase in government borrowing. Initially, the supply of loanable funds is curve $S_1$, the equilibrium real interest rate is $i_1$, and the quantity of loanable funds is $L_1$. The increase in government borrowing by £20 billion reduces the supply of loanable funds at each interest rate by £20 billion, so the new supply curve, $S_2$, is shown by a shift to the left of $S_1$ by exactly £20 billion. As a result of the shift, the new equilibrium real interest rate is $i_2$. The interest rate has increased as a result of the increase in government borrowing.

Bonus points for appreciating that this story, using the supply/demand of loanable funds, pertains to the long-run. In the short-run there are other theories, such as liquidity preference (the supply and demand for money), which can help explain interest rates; see Mankiw-Taylor p. 761. Indeed, more bonus points for relating what might happen to interest rates to the contemporary economic situation in the UK. Confidence in the ability of the UK government to repay its debts affects the interest rate it pays; as the perceived riskiness of UK bonds (its debt) rises, the higher the interest rate the UK government must pay to entice private investors to buy this debt.

Open economy affects (e.g. see Mankiw/Taylor p. 695) of the deficit could also be discussed; but since you are not asked specifically what happens to GDP or the trade deficit in response to the deficit the other affects are similar to in the closed economy; i.e. in an open economy, government budget deficits cause the currency to appreciate, crowd out domestic investment (as in the closed economy), cause the currency to appreciate and push the trade balance towards deficit.

Because the interest rate has increased, both investment and national saving decline and private saving increases. This decline in private investment from $L_1$ to $L_2$ because of the increased government borrowing is called ‘crowding out’. The increase in government borrowing reduces public saving. From the figure you can see that total loanable funds (and thus both investment and national saving) decline by less than
£20 billion, to £2, while public saving declines by £20 billion and private saving rises by less than £20 billion.

c. The more elastic is the supply of loanable funds, the flatter the supply curve would be, so the interest rate would rise by less and thus national saving would fall by less, as Figure 2 shows.

d. The more elastic the demand for loanable funds, the flatter the demand curve would be, so the interest rate would rise by less and thus national saving would fall by more, as Figure 3 shows.

e. If households believe that greater government borrowing today implies higher taxes to pay off the government debt in the future, then people will save more so they can pay the higher future taxes. Thus, private saving will increase, as will the supply of loanable funds. This will offset the reduction in public saving, thus reducing the amount by which the equilibrium quantity of investment and national saving decline, and reducing the amount that the interest rate rises.

If the rise in private saving was exactly equal to the increase in government borrowing, there would be no shift in the national saving curve, so investment,
national saving, and the interest rate would all be unchanged. This is the case of Ricardian equivalence.

N.B. Something to watch out for. One needs to be careful how one defines the supply and demand of loanable funds. The Mankiw-Taylor book considers supply to be national supply (i.e. both private and public saving, so \((Y-T-C)\) and \((T-G)\)) and demand to be from the private sector only (for private investment). But, in principle, one could consider the supply of private savings only. Then demand is \(I\) and \((G-T)\), since private \(I=\text{private }S + \text{ public }S\) \((T-G)\) which rearranged is \(I+(G-T)=\text{private }S\). Then a deficit involves not a leftward shift of the supply curve but a rightward shift of the demand curve. But, note, the x-axis is now different; it is just private savings, not the supply of national savings as in the Mankiw-Taylor book. So if you viewed the deficit as shifting the demand curve and not the supply curve (and clearly took this interpretation, e.g., by redefining the x-axis as indicated) then you are also correct.