

## Solutions to Homework 8

Page 307

### Question 3

- |                      |                |
|----------------------|----------------|
| a. approximation: 2% | exact: 1.9607% |
| b. approximation: 4% | exact: 3.6036% |
| c. approximation: 8% | exact: 5.4794% |

### Question 4

- Nominal interest rates cannot be negative. Suppose nominal interest rates were negative. In this case borrowing money increases your wealth and lending money decreases your nominal wealth. Nobody would be willing to lend and everybody would be willing to borrow. Hence there would be no equilibrium such that demand and supply of nominal funds are equalized.
- Ex-post real interest rates can well be negative if the inflation rate during a period has been sufficiently high. If money is held to transfer wealth from one period to another, the value of money suffers from inflation as well.
- If real interest rates are negative but nominal interest rates are positive, this will increase borrowing and reduce lending.
- Switzerland, Japan, US have the lowest nominal interest rates. Japan, Norway, Switzerland and Finland have the lowest real interest rates.

Page 526

### Question 1

- The effects of monetary policy are well understood both theoretically and empirically. However, our understanding is not sufficient to fine-tune the economy. Monetary policy turns out to be very important in practice and given certain frictions in the economy policies that follow well defined rules can easily improve upon a laissez-faire policy.
- There seems to be evidence that the economy performs stronger during Democratic administrations (which will usually also imply lower unemployment). However, this does not necessarily imply that electing a Democrat will result in lower unemployment. It could well be that Republicans are better at handling recessions. Suppose that everybody expects that a recession is coming up. Then under the above hypothesis, electing a Republican into office might be preferred. Consequently, Republican presidents will on average preside over weaker economies – something that reflects strength and not a weakness of Republican economic policy. Which one is true?
- The evidence on political business cycles is not very strong. Theory would predict strong output growth in the last period before the election. However, output growth in the last period differs slightly only from output growth in the first period. (However, note that this theory strongly relies on myopic voters.)

- d. Theoretically, well designed rules can help reducing the budget deficit. However, in practice it is hard to make a strong case for them
- e. The problem with this announcement is its time inconsistency. If there are no current hostages, announcing such a policy should discourage hostage takers in the first place. However, what happens if some hostages are taken despite the announcement? Once hostages are taken, the government has an incentive to save the lives of these hostages and it will revise its earlier decision not to negotiate with hostage takers.
- f. If the government was able to credibly commit to never negotiate with hostage takers (for example by constitutional amendment, harsh punishments to politicians that are involved in the negotiations), such a policy would result in no hostage taking. Hostage takers knew that the government would never negotiate. Hence, yes, the government should under no circumstances be allowed to negotiate with hostage takers.
- g. This statement is wrong. If there are frictions in the economy, economic policy can improve the social outcome despite rational expectations.

#### Question 2

Time inconsistencies can even arise at a personal level. Suppose you are a smoker. You know that you will be better off if you quit. You can decide that you will quit tomorrow. However, as you arrive tomorrow you will feel better if you smoke and hence you delay quitting one more day. As you can see, your plan of quitting smoking tomorrow is not time consistent.