Macro-Finance

Revision

Monday 25th February, 2019

Revision

$\mathbb{Q}$ — In a Cobb-Douglas production function where α is the share of capital in production and $1-\alpha$ is the share of labour, doubling the two inputs but decreasing total factor productivity by a factor of two will lead to output to:

1. remain unchanged
2. double
3. halve

$\mathbb{A}$ — *Start with the production function* $Y = AK^{\alpha}L^{1-\alpha}$ *then double the inputs and halve the total factor productivity:*

$$\begin{aligned} Y &= \left(\frac{A}{2}\right)(2K)^{\alpha}(2L)^{1-\alpha} \\ &= \frac{1}{2}A \times (2^{\alpha} \times 2^{1-\alpha}) \times K^{\alpha}L^{(1-\alpha)} \\ &= AK^{\alpha}L^{1-\alpha} \end{aligned}$$

hence output remains the same.

Revision

$\mathbb{Q}$ — In Solow growth model, if the capital stock increases by 50% then how much does the total factor productivity changes?

1. Increases by 50%
2. Increases by 100%
3. Increases by 150%
4. Remains the same

$\mathbb{A}$ — *Recall that the TFP grows exogenously, thus increasing the capital stock only increase the output but leaves other inputs unaffected.*

$\mathbb{Q}$ — In Solow growth model, if the capital stock and the total factor productivity each increase by 50% then how much does the output changes?

1. Increases by 50%
2. Increases by 25%
3. Remains the same
4. Ambiguous

Revision

$\mathbb{Q}$ — If the prices of all goods and services produced in the economy rose while the quantity of all goods and services stayed the same, which would rise?

1. both real GDP and nominal GDP
2. real GDP but not nominal GDP
3. nominal GDP but not real GDP
4. neither nominal GDP nor real GDP

$\mathbb{A}$ — *Statement 3*

$\mathbb{Q}$ — When is a country said to move into a recession?

1. If actual output falls below the potential level of output.
2. If actual output falls below the trend level of output.
3. If actual output falls.
4. If actual output falls for two consecutive quarters of a year.

$\mathbb{A}$ — *Statement 4 is the correct definition of a recession. Recall that the NBER also announces recession periods which mostly overlaps with the definition above but not always. Since the question doesn't mention NBER, the best answer is 4.*

Revision

$\mathbb{Q}$ — Empirical evidence on labor supply generally shows that labor supply:

1. Rises in response to a permanent increase in the real wage but falls in response to a temporary increase in the real wage.
2. Rises in response to a temporary increase in the real wage but falls in response to a permanent increase in the real wage.
3. Rises in response to both a temporary and a permanent increase in the real wage.
4. Falls in response to both a temporary and a permanent increase in the real wage.

$\mathbb{A}$ — *Statement 2, why?*

$\mathbb{Q}$ — Suppose your company is in equilibrium with its capital stock at its desired level. A permanent increase in the depreciation rate now has what effect on your desired capital stock?

1. Raises it because the future marginal productivity of capital is higher.
2. Lowers it because the future marginal productivity of capital is lower.
3. Raises it because the user cost of capital is now lower.
4. Lowers it because the user cost of capital is now higher.

$\mathbb{A}$ — *Statement 4. Depreciation shows in the budget constraint with a negative sign:* $K_{t+1} = (1 - \delta)K_t + I_t$

Revision

$\mathbb{Q}$ — You take \$1000 you had kept at home and deposit it in your bank account. If this \$1000 stays in the banking system as reserves and if banks hold reserves equal to 20 percent of deposits, then:

- By how much does the total amount of deposits in the banking system increase?
  $\mathbb{A}$ — *If banks follow fractional-reserve banking system and hold reserves only at the requirement level (20%), then the total amount of deposits in the banking system increases by \$5,000 as the money multiplier is* $1/0.2 = 5$.
- By how much does the money supply increase?
  $\mathbb{A}$ — *Given the money multiplier of 5, deposits will increase by \$5,000. However the money supply will increase less than \$5,000, as the currency in circulation will decrease by \$1000. Therefore, the money supply will increase by \$4,000*

Revision

$\mathbb{Q}$ — Suppose in a certain economy the debt-to-GDP is 36% and inflation rate is 3%. If the interest rate that government pays on its debt is 5%, does the year end debt-to-GDP increase or decrease, and what is the real interest rate component, when the primary surplus is 0.75% and there is no real growth?

1. Increase, 0.72%
2. Decrease, 7.20%
3. Decrease, 0.72%
4. Increase, 7.20%

$\mathbb{A}$ — *Use the approximation to work out,*

$$\begin{aligned} d_{t+1} &= \frac{1+i_{t+1}}{1+g_{t+1}+\pi_{t+1}} d_t - s_t \\ &\approx (1+i_{t+1}-g_{t+1}-\pi_{t+1})d_t - s_t \\ &\approx (1+5\%-0-3\%)\times 36 - 0.75 \;\approx\; 35.97 \end{aligned}$$

and the interest rate component is $(5\%-3\%)\times 36 = 0.72\%$ *(statement 3)*

$\mathbb{Q}$ — How would your answer change if government spendings fall? *Recall that* $s_t = (T_t - G_t)/Y_t$*, thus the year end debt-to-GDP decrease would be even stronger .*

Revision

$\mathbb{Q}$ — Suppose the government of a country has a high level of debt. Which of the following statements about this debt is false?

1. A high debt might make lenders worry if the government could repay its loans and so raise the interest rate people wanted when they lent to it.
2. A high debt would make it difficult for the government to respond to any future downturns in its economy with expansionary fiscal policy.
3. If all the debt was in the form of bonds owned by the country's own citizens, then the debt would not be a burden to the country's taxpayers.

$\mathbb{A}$ — *Statement 3 is false: the debt is a burden to taxpayers because they must pay taxes to cover the interest and repayments.*

$\mathbb{Q}$ — The Ricardian equivalence proposition suggests that a government deficit caused by a tax cut,

1. causes inflation
2. causes a current account deficit
3. raises interest rates
4. doesn't affect consumption

$\mathbb{A}$ — *Statement 4*

Revision

$\mathbb{Q}$ — Which of the following would cause sterling to depreciate against the US dollar, other things being equal?

1. A fall in incomes in the US.
2. News which suggests that prospects for UK firms are improving.
3. A rise in interest rates in the UK.
4. An expected rise in the value of sterling.

$\mathbb{A}$ — *Statement 1 is correct, as this should lead to US citizens demanding fewer imports from the UK and so in turn demanding fewer pounds. Regarding b, c, and d, these will respectively encourage some people abroad to demand sterling in order to buy shares in UK companies, or to place funds in sterling deposits, or to buy sterling before its value increases; in each case the increased demand for sterling will cause it to appreciate.*

Revision

$\mathbb{Q}$ — Suppose a country has a floating exchange rate and no capital controls. It also has a recessionary gap. It tackles this with an expansionary monetary policy. In the final equilibrium people expect its exchange rate to stay at its new value. Which of the following statements is false?

1. The interest rate will initially fall but must in the end return to its initial value.
2. Consumer spending and investment will initially increase, but must in the end return to their initial values.
3. Money demand must end up higher that it was initially.
4. The exchange rate must end up at its initial value.

$\mathbb{A}$ — *Statement 4 is false. To see why, note that 1 must be true: if people expect no further change in the exchange rate, then interest rates in this country must be the same as elsewhere. And if interest rates are the same as elsewhere, the monetary policy will have no effect on consumer spending or investment, as stated in 2; these components of spending will initially rise but later fall back. Now if there has been monetary expansion, with a rightward shift in the money supply curve, and the interest rate ends up at its initial value, then there must also have been a rise in the demand for money, as stated in 3, which must be caused by a rise in output and so in incomes. For output to rise, the exchange rate must end up lower than it was initially, in contradiction of d, leading to an increase in exports and a fall in imports.*

Revision

$\mathbb{Q}$ — Suppose that a company in India initially owns a factory worth 45 million rupees, that it has borrowed 1 million US dollars to finance its construction, and that these are its only assets and liabilities.

- If the exchange rate is initially 40 rupees per dollar, what is the initial value of the company, in rupees?
  $\mathbb{A}$ — *5 million rupees*
- If the rupee now depreciates by 20% what does the value of the company in rupees become?
  $\mathbb{A}$ — *Negative 3 million rupees. (The exchange rate depreciates 20% from 40 to 48 rupees per dollar.)*
- Would the effect of the depreciation on the value of the company be any different if it was measured in dollars?
  $\mathbb{A}$ — *No, it is still negative. In dollars, the value of the company goes from,*

$$\begin{aligned} +\$125,000 &= 45,000,000/40 - 1,000,000 \\ &= 1,125,000 - 1,000,000 \end{aligned}$$

to:

$$\begin{aligned} -\$62,500 &= 45,000,000/48 - 1,000,000 \\ &= 937,500 - 1,000,000 \end{aligned}$$

Revision

$\mathbb{Q}$ — When the Fed sells government bonds, the reserves of the banking system,

1. increase, so the money supply increases
2. increase, so the money supply decreases
3. decrease, so the money supply increases
4. decrease, so the money supply decreases

$\mathbb{A}$ — *Statement 4*

$\mathbb{Q}$ — With a floating exchange rate, a monetary contraction causes,

1. The exchange rate to depreciate.
2. The interest rate to fall.
3. National income to increase
4. A capital inflow.
5. The price level to rise.

$\mathbb{A}$ — *Statement 4*

Revision

$\mathbb{Q}$ — Suppose that a country with a pegged exchange rate has reserves of $8 billion and is running a deficit on its current account of $1 billion per month. Without any additional information about the country, would you expect it to experience an exchange-rate crisis? And if so, when and why?

1. Less than 8 months
2. Exactly 8 months
3. More than 8 months

$\mathbb{A}$ — *Without knowing whether the country is also attracting inflows of foreign investment, especially foreign direct investment, we cannot know if it will run out of reserves. However, in the absence of such investment, we can see that it will run out of reserves in 8 months at the latest. Since owners of assets within the country can see this as well as we can, they will begin to move their capital out of the country before that, and an exchange rate crisis will occur sooner than 8 months*

Revision

$\mathbb{Q}$ — Suppose a central bank uses the Taylor rule with coefficients $\alpha = 0.5$ and $\lambda = 1.5$ on the inflation relative to the inflation target (2%) and on output growth relative to potential output growth, respectively. Inflation suddenly increases from 1% to 2% and there is no output gap. What is the expected change in the short term interest rate?

1. -1.5%
2. -0.5%
3. 0%
4. 0.5%
5. 1.5%

$\mathbb{A}$ — *Use the following rule to show that there will be no change in the short term interest rate:*

$$i_t = \pi_t + r_t^* + \alpha \underbrace{(\pi_t - \pi_t^*)}_{inflation\ gap} + \lambda \underbrace{(y_t - \bar{y}_t)}_{output\ gap} \tag{1}$$

Revision

$\mathbb{Q}$ — X is selling at \$22.00 per share. The most recent annual dividend paid was \$0.80. Using the Gordon Growth model, if the market requires a return of 11%, what is the expected dividend growth rate for X?

$\mathbb{A}$ — *Use the Gordon dividend discount formula,*

$$\begin{aligned} P_0 &= \frac{D_1}{r-g} \\ &= \frac{D_0(1+g)}{r-g} \end{aligned}$$

then,

$$22 = \frac{0.80(1+g)}{0.11-g}$$

Thus, $g = 7.1\%$

Revision

$\mathbb{Q}$ — Which of the following institutions is in charge of guaranteeing depositor's money held at the U.S. retail commercial banks?

1. SEC
2. FOMC
3. FDIC
4. The Fed
5. The Treasury Department

$\mathbb{A}$ — *Each of these institutions provides a number of services, many of which could partly overlap. But more specifically, the U.S. Securities and Exchange Commission (SEC) is responsible for enforcing the federal securities laws, proposing securities rules, and regulating the securities industry, the nation's stock and options exchanges, etc. The Federal Open Market Committee (FOMC) is mainly in charge of the nation's open market operations (e.g., the Fed's buying and selling of United States Treasury securities)and also key decisions about interest rates and the growth of the United States money supply. The Federal Deposit Insurance Corporation (FDIC) is in charge of deposit insurance to depositors in US banks.*

Revision

$\mathbb{Q}$ — Which of the following increases risk and return of a commercial bank?

1. Higher foreign assets, higher leverage, longer maturities on liabilities relative to assets
2. Lower risk-free investments, Higher leverage, longer maturities on assets relative to liabilities
3. Higher foreign liabilities, lower leverage, longer maturities on assets relative to liabilities
4. Higher risk-free investment, lower leverage, longer maturities on assets relative to liabilities

$\mathbb{A}$ — *Statement 2*

Revision

The following questions are drawn from most recent economic events that are relevant to macroeconomics and financial markets. These are only suggestions and you should not limit your preparations to these.

$\mathbb{Q}$ — What are the differences and similarities of a bail-in vs a bail-out?

$\mathbb{A}$ — *A bail-in occurs when the borrower's creditors are forced to bear some of the burden by having a portion of their debt written off. For example, bondholders in Cyprus banks and depositors with more than 100,000 euros in their accounts were forced to write-off a portion of their holdings. This approach eliminates some of the risk for taxpayers by forcing other creditors to share in the pain and suffering.*

Bail-outs occur when outside investors, such as a government, rescue a borrower by injecting money to help make debt payments. For example, U.S. taxpayers provided capital to many major U.S. banks during the 2008 economic crisis in order to help them meet their debt payments and remain in business, as opposed to being liquidated to creditors. This helped save the companies from bankruptcy, with taxpayers assuming the risks associated with their inability to repay the loans.

Revision

Both have drawbacks, a bail-in specifically could be problematic because:

- Bail-ins in Cyprus and EU legislation raise questions about compliance with international investment protection obligations regarding compensation for expropriation, as well as other treaty standards of fairness and non-discrimination.
- An investment treaty claim against Cyprus alleging that bail-ins constitute compensable expropriation would raise non-trivial questions of jurisdiction and admissibility, but would be likely to be considered on merits.

Also, note that the substantive aspects of the claim might include:

- Whether direct or indirect expropriation has occurred.
- Whether Cyprus (or a similarly placed State) could validly invoke necessity, at least to suspend, and at most to preclude, the obligation to make good the loss.
- What compensation is to be paid. States are entitled to expropriate lawfully under certain conditions, but only against the payment of compensation; if these conditions are not met, there is an obligation to restore the property or pay damages for its loss. In the present case, where money is what is taken, the distinction may be less obvious.

Revision

$\mathbb{Q}$ — The US dollar has been depreciating against Euro and UK pound since December 2017. Discuss the implications of the new exchange rates on the US and the European economies. *Financial Times: "Draghi takes swipe at US for talking down dollar"*

$\mathbb{Q}$ — The US corporate tax rate was sharply dropped in early 2018. Discuss the implications of this new taxation policy on the US real economy and the government fiscal budget.