

國立清華大學 106 學年度碩士班考試入學試題

系所班組別：經濟學系 (0541)

考試科目 (代碼)：總體經濟學 (代碼 4102)

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全部作答，請依序作答，作答請簡明扼要

1. (10 points) How does the real-business cycle model explain short-run fluctuations in employment? What causes short-run recessions in a real-business-cycle model compared to a new Keynesian model?

Note: Keep your answer concise, precise, and within 100 words.

2. (10 points) There are two nearly identical countries, Friedmanland and Keynesland. Low inflation and low unemployment are policy goals of the central banks of the two countries. There is a similar short-run tradeoff between unemployment and unexpected inflation in both countries. Private agents in both countries form expectations rationally and understand the incentives that central banks may have to renege on low-inflation policies. Initially, the rates of inflation and unemployment are the same in both countries. The central bank of Friedmanland makes a credible announcement that it will operate according to a low-inflation rule. The central bank of Keynesland announces that it plans to follow a low-inflation policy, but retains the right to deviate from this policy at its discretion.

- (i). In which country would you expect the rate of inflation to be lower? Briefly explain your answer.
(ii). In which country would you expect the unemployment rate to be lower? Briefly explain your answer.

3. (14 points) 僅寫出答案即可，無需計算與解釋 Suppose that a country called Gugoland sets up income tax on individuals as follows:

Income above	Income below	Taxes
0	\$10,000	$0.10 \times \text{income}$
\$10,000	\$50,000	$\$1000 + [0.20 \times (\text{income} - \$10,000)]$
\$50,000 & up		$\$ X + [0.35 \times (\text{income} - \$50,000)]$

- (i). (4 points) Calculate the average tax rate (ATR) and marginal tax rate (MTR) for workers with the following levels of income:

(a). \$5,000: ATR= _____ MTR= _____
(b). \$300,000: ATR= _____ MTR= _____

Note: you need to calculate X before you determine the MTR in (b).

- (ii). (6 points) Similar to the U.S. Tax Reform Act of 1986, the government of Gugoland decides to lower the marginal tax rates on labor income and increase the average tax rates. In Gugoland, the amount of labor supplied at any real wage will _____ (increase, decrease, or remain unchanged) due to the _____ (income effect, substitution effect, or wealth effect).

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(iii). (4 points) In response to a tax cut announced by the Gugoland's President, the consumption of a consumer who is borrowing-constrained _____ (increases, decreases, or remains unchanged), whereas the consumption of a forward-looking unconstrained consumer acting in accord with Ricardian equivalence _____ (increases, decreases, or remains unchanged).

4. (16 points) Read the Wall Street Journal article and answer questions (i) to (iii).

“U.S. Risks Japanese-Style Growth Slump”, by Greg Ip; June 16, 2016

Source: <http://www.wsj.com/articles/analysis-u-s-risks-japanese-style-growth-slump-1466113020>

When it comes to setting interest rates, bond markets stole the spotlight from central banks this week.

The Federal Reserve and the Bank of Japan left monetary policy unchanged, yet government bond yields plumbed fresh lows—they went negative in Germany, further negative in Japan and hit three-year lows in the U.S.

Of the many reasons for this drop, three stand out: central banks' efforts to stimulate economic growth with zero or negative short-term rates and bond buying; investors' desire for safety, driven in great part by next week's U.K. vote on whether to leave the European Union; and slowing economic growth around the world.

The first two are largely short-term phenomena. But the third is more intractable and therefore more worrisome. And it suggests the U.S. and many other countries are coming to resemble Japan, whose floundering economy has resisted two decades of resuscitation efforts.

Bond yields are determined by what investors expect short-term rates to be over the next decade plus some extra compensation, called the “term premium,” for locking their money up for so long. The term premium has historically averaged 0.5 to 2 percentage points. But Cornerstone Macro, an investment advisory, estimates it is now negative 0.6 percentage point in the U.S., negative 1.6 points in Germany and negative 1.7 points in Japan.

This is in part because central banks have bought bonds to reduce the supply and force investors to pay more and accept a lower yield. (Bond prices and yields move inversely.) The hope is that those lower yields will spur investment and push inflation higher toward the central banks' 2% targets.

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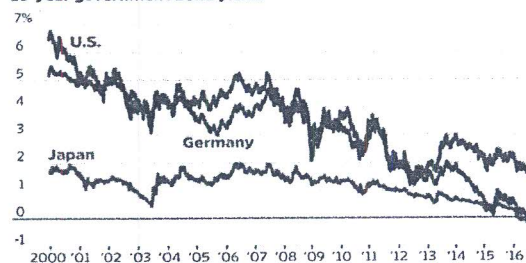
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Rate Reduction

The fear of a financial disruption like "Brexit," central-bank policy and slow growth are contributing factors to low long-term bond rates.

10-year government bond yields



Source: FactSet (U.S. Treasuries); Thomson Reuters (foreign bonds)
THE WALL STREET JOURNAL.

The negative term premium may also reflect fear. Government bonds are typically the safest asset available to investors. When disaster strikes, they usually rise in price as other assets such as stocks and corporate bonds fall. The U.S. financial crisis in 2008, the eurozone sovereign-debt crisis, the possibility of a Chinese economic slump, a massive terrorist attack or a pandemic have all enhanced this insurance value of bonds at various points. The risk du jour is a so-called Brexit; even a bond with no yield is a useful hedge against worst-case scenarios should Britain vote to leave the EU.

Fear doesn't last forever, and neither does central-bank stimulus. Yet something more entrenched now also appears to be holding down interest rates, and the Fed's decision Wednesday to lower the path of its future rate increases cast a spotlight on it.

The Fed has long assumed it would raise short-term rates to some neutral level that is compatible with full employment and stable inflation. But that number seems to be dropping; officials, who thought it was 4% in 2013, now think it's 3%, and Fed Chairwoman Janet Yellen said Wednesday it might be 2%.

She usually blames the low neutral rate on "headwinds" such as the aftereffects of the 2008 financial crisis that would fade with time. But Wednesday, she cited "long-lasting or persistent" factors, such as aging societies and a global slump in productivity growth.

A slower-growing work force needs less equipment. Slow growth in productivity also leads to slower growth in wages and profits, which discourage households from borrowing (since they will have less future income with which to pay the money back) and firms from investing. In this way, sluggish growth can become self-reinforcing.

This may sound familiar because it's what Japan has been going through since 1990. Back then, its economy was widely expected to continue growing at

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around 4% per year. But its working-age population peaked around 1995 and its productivity growth slowed. Since 1990, growth has averaged under 1%. Interest rates at zero and below have had limited effect at spurring business to invest more; they see their best growth prospects outside Japan.

Today, the effect on interest rates is compounded by the fact that labor-force growth and productivity growth have slowed in most major economies. Many emerging markets are coping with excess commodity-production capacity akin to the overhang of vacant homes the U.S. had in 2009.

Japanese policy makers have made matters worse by periodically raising taxes or interest rates in the premature belief that the growth was on the mend. One result is too-low inflation that has then required low rates for even longer. That is one mistake the Fed seems determined not to make.

Yet an aging population, slow productivity growth and the self-perpetuating pessimism that depresses business investment are much tougher challenges to overcome. And the verdict of the bond market is that they won't be overcome soon.

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- (i). (5 points) Describe two similarities between the U.S. economy in mid-2016 and Japan's economy in the 1990s. What is one important difference between these economies?
- (ii). (7 points) Suppose you are the connection between the U.S. Fed and the U.S. Federal Government. Your goal is to coordinate policy efforts to achieve full-employment output in the economy while keeping a fixed real interest rate. You must recommend tightening or easing or no changing both monetary and fiscal policies to do this. What would your recommendation be in each of the following situations?
- (a). Expected inflation declines.
 - (b). The future marginal productivity of capital declines.
- (iii). (4 points) What are the practical limitations with the two macroeconomic policy actions you recommend in the previous question?

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5. (5 points) 下表為台灣2015年的國際收支資料 (單位：百萬美元)

A. 經常帳	75,798
商品：收入 (出口)	336,899
商品：支出 (進口)	264,064
服務：收入 (輸出)	41,127
服務：支出 (輸入)	51,524
初次所得：收入	29,769
初次所得：支出	13,032
二次所得：收入	6,618
二次所得：支出	9,995
B. 資本帳	-5
資本帳：收入	15
資本帳：支出	20
C. 金融帳	68,376
直接投資：資產	14,709
直接投資：負債	2,413
證券投資：資產	56,341
證券投資：負債	-858
衍生金融商品	1,184
其他投資：資產	-14,238
其他投資：負債	-11,935
D. 誤差與遺漏淨額	7,594
E. 準備與相關項目	?

請問「準備與相關項目」的數目為_____。

6. (5 points) 下表為台灣於民國 85—87年之物價情勢表

	消費者物價指數		躉售物價指數
	總指數	不含新鮮蔬果、魚介及能源	
民國 85 年	100.00	100.00	100.00
86 年	100.90	100.96	99.54
87 年	102.60	102.04	100.14

請問 87 年 core CPI 的上漲率為_____？

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7. (10 points) Suppose that the income elasticity of money demand is 0.6, the interest elasticity of money demand is -0.4 , and the expected growth rate of real income over the next year is 0.03. Now the real interest rate is expected to remain constant over the next year, and inflation rate is expected to be zero for several years. If the central bank wants to achieve the goal of inflation at the rate of 2 percent over the next year:
- (i). What should the growth rate of nominal money supply be?
 - (ii). What should the rate of change in velocity be?
8. (5 points) What is the source of the long-run growth according to the Solow model? Explain.
9. (10 points) What is the “Solow Paradox”? Please provide one explanation (and one explanation only) for the paradox.
10. (10 points) Draw a consumption function to illustrate each of the following statements:
- (i). “The fundamental psychological law ... is that men are disposed, as a rule and on the average, to increase their consumption as their income increases, but not by as much as the increase in their income.”
 - (ii). “Simon Kuznets’ 1946 empirical study, by using the 1869-1938 US data, shows that the average propensity to consume did not vary significantly in the face of vastly expanding income.”
11. (5 points) What is the *flat* yield curve? Give one reason (and one reason only) for why the curve is flat.