

第一部分：單選題

說明：以下每題 4 分，共 40 分。每題請選出最正確的一個答案。請用 2B 鉛筆在答案卡上作答。答錯不倒扣。

1. Which of the following statements about macroeconomic concepts is correct?
 - A. The Phillips Curve illustrates a negative relationship between the change in the unemployment rate and inflation.
 - B. Inflation harms the economy because it makes goods and services more expensive.
 - C. A combination of monetary contraction and fiscal expansion leads to higher output and higher interest rates.
 - D. The neutrality of money implies that monetary policy has no effect on output in both the short run and long run.
 - E. None of the above.
2. A Bloomberg News survey reports that most experts now expect the Federal Reserve to raise the federal funds rate from 1.75% to 2% on July 30. A month ago, only a few anticipated this rate hike. Based on this information, how are asset valuations likely to respond?
 - A. Asset values will decline on July 30 if the Fed raises rates to 2%.
 - B. Asset values will decline on July 30 if the Fed raises rates to 2.25%.
 - C. Asset prices have likely fallen between last month and today.
 - D. Both A and C.
 - E. Both B and C.
3. Two economies are identical in all aspects except for their marginal propensity to consume (MPC). One economy has a high MPC, and the other has a low MPC. If both economies experience an equal increase in the money supply, how will the low MPC economy likely respond compared to the high MPC economy?
 - A. A smaller increase in output and a larger decrease in the interest rate.
 - B. A larger increase in output and a larger decrease in the interest rate.
 - C. A smaller increase in output and a smaller decrease in the interest rate.
 - D. A larger increase in output and a smaller decrease in the interest rate.
 - E. None of the above.
4. Which of the following events would most likely lead to an increase in the natural rate of unemployment?
 - A. A reduction in government spending on public goods and services.
 - B. An increase in the real money supply by the central bank.
 - C. The creation of a business cartel that restricts market competition.
 - D. A decline in the bargaining power of labor unions.
 - E. None of the above.
5. Which of the following actions would most likely result in both higher interest rates and lower output in the economy?
 - A. The federal government increases infrastructure spending.
 - B. The Federal Reserve increases the money supply.
 - C. The federal government implements a tax cut.
 - D. The Federal Reserve conducts open market operations by selling government bonds.
 - E. Both (A) and (D).
6. Suppose the interest rate in the United States is higher than the interest rate in the United Kingdom. Which of the following is most likely to occur according to uncovered interest rate parity?
 - A. The U.S. dollar is expected to appreciate with respect to the British pound.
 - B. The British pound is expected to appreciate with respect to the U.S. dollar.
 - C. U.S. interest rates are expected to rise even further.

見背面

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- D. U.S. interest rates are expected to fall to match the U.K.'s rates.
E. The future exchange rate movement between the U.S. dollar and the British pound is unpredictable.
7. Consider an economy with **ONLY** two firms: a **wheat producer** and a **bread company**. Their revenues and expenses for the year are shown in the following table. What is the **nominal GDP** of this economy?

Firms	Revenue from Sales	Expenses
Wheat Producer	\$300	Wages: \$250
Bread Company	\$500	Wheat Purchases: \$250 Wages: \$200

- A. \$100
B. \$450
C. \$500
D. \$550
E. \$800
8. The central bank minimizes the following loss function in each period t
- $$L_t = (\pi_t - \pi^*)^2 + (Y_t - Y^*)^2$$
- where the target inflation rate is π^* and the target output level is the natural level of output $Y^* = Y_n$. Assume the economy follows a linear Phillips Curve relationship between inflation π_t and output Y_t , and that the private sector forms expectations adaptively, i.e., $\pi_t^e = \pi_{t-1}$. Initially, at $t = 0$ the economy has inflation below target ($\pi_0 < \pi^*$) and output at its natural level ($Y_0 = Y_n$). What will be the evolution of output starting from $t = 1$?
- A. Output remains at the natural level for all $t \geq 1$.
B. Output increases at $t = 1$ and stays at that higher level.
C. Output rises at $t = 1$ and returns to the natural level at $t = 2$, staying there afterward.
D. Output rises at $t = 1$ and gradually returns to the natural level over time.
E. None of the above.
9. Imagine that Taiwan does not export any goods or services, while Japan exclusively exports 100 Lexus cars to Taiwan, each valued at NTD \$100,000,000. Neither Taiwan nor Japan engages in any other international trade or financial transactions. Based on this scenario, which of the following statements must be true?
- A. Taiwan is running a deficit in its capital account.
B. Japan is running a surplus in its current account.
C. Japan is selling Taiwanese assets.
D. The exchange rate of New Taiwan Dollars (NTD) per Japanese Yen (JPY) must be greater than 1.
E. None of the above.
10. Consider a version of the Solow Growth Model that incorporates both technological progress and human capital accumulation. Which of the following statements is correct?
- A. Including human capital in the Solow model does not affect the steady-state growth rate.
B. Human capital has no impact on the steady-state level of output per worker.
C. Assuming no productivity differences across countries, the model predicts greater inequality in output per worker than what is observed in real-world data.
D. On average, poor countries grow slower than rich countries due to lower capital accumulation.
E. None of the above.

第二部分：多選題

說明：以下每題 5 分，共 10 分請用 2B 鉛筆在答案卡上作答。答案可能不只一個選項。每答對一個選項，可得 1 分，每答錯一個選項，

接次頁

倒扣 1 分，倒扣到本題之實得分數為零為止。

請閱讀以下關於 2017 年 *Journal of Monetary Economics* 文章¹後回答問題。

This study investigates how monetary policy shocks influence income and consumption inequality in the United States, using household-level data from the Consumer Expenditure Survey (CEX) from 1980 onward. The authors find that contractionary monetary policy—where the Federal Reserve raises interest rates—consistently leads to higher inequality in labor earnings, total income, consumption, and expenditures. These effects are robust across different measures of inequality, including the Gini coefficient, cross-sectional standard deviation, and the 90th–10th percentile spread. The findings highlight that monetary policy is not distributionally neutral, as even typical policy changes have meaningful effects on inequality.

A significant contribution of this paper is the analysis of the various channels through which monetary policy affects different segments of the population. The income composition channel plays a crucial role, as households rely on diverse income sources such as labor earnings, business income, financial income, and transfers. Contractionary policy negatively impacts business and labor income while increasing financial income, disproportionately benefiting high-income households. Additionally, the savings redistribution channel redistributes wealth from borrowers to savers when interest rates rise, favoring older, wealthier homeowners over younger, debt-laden households. The financial segmentation channel exacerbates inequality by allowing wealthier households, with better access to financial markets, to react more swiftly to policy changes.

The Figure 1 demonstrates a marked increase in all forms of inequality during the early 1980s, coinciding with the Volcker disinflation period. Over time, income inequality continued to trend upward, while consumption and expenditure inequality showed more cyclical behavior. Notably, the data reveal that contractionary monetary policy has a more substantial and persistent impact on consumption and expenditure inequality compared to labor earnings. This suggests that monetary tightening disproportionately affects low- and middle-income households' ability to sustain their consumption levels, while wealthier households are more insulated due to their asset holdings.

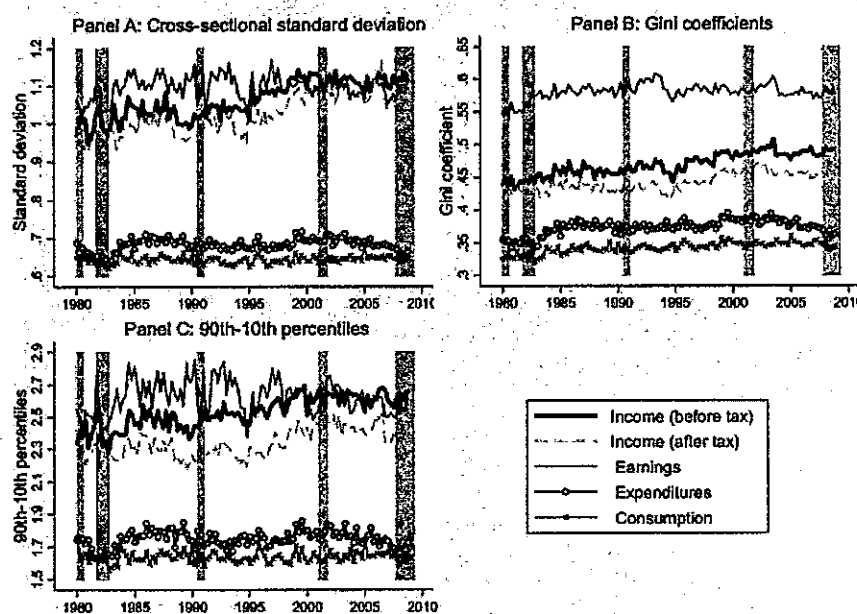


Figure 1: Inequality in total income, labor earnings, expenditures and consumption in the United States.

All inequality measures are averaged over previous and subsequent quarters. Grey shaded areas are U.S. recessions.

The study concludes that monetary policy contributes significantly to short-term fluctuations in inequality, accounting for up to 20% of the variance in consumption and expenditure inequality. However, it does not explain the long-term trends in rising inequality. The authors stress that while monetary policy is not designed to address inequality, its distributional effects warrant careful consideration. They advocate for complementary fiscal policies to mitigate these disparities and call for greater transparency in communicating the broader consequences of

¹ Olivier Coibion, Yuriy Gorodnichenko, Lorenz Kueng, and John Silvia. 2017. “Innocent Bystanders? Monetary Policy and Inequality.” *Journal of Monetary Economics* 88:70-89.

monetary actions.

11. Which of the following mechanisms explain how contractionary monetary policy increases income and consumption inequality? (答案可能不只一項)
- A. The savings redistribution channel, where higher interest rates benefit borrowers.
 - B. The income composition channel, where financial income rises relative to labor income.
 - C. The portfolio channel, where wealthier households gain from asset price increases.
 - D. The financial segmentation channel, where wealthier households access financial markets earlier.
 - E. The earnings heterogeneity channel, where low-income households benefit more from wage growth.
12. Based on the findings in the article, how does contractionary monetary policy impact different household income groups? (答案可能不只一項)
- A. Low-income households see a rise in transfer income, offsetting monetary tightening effects.
 - B. High-income households experience increased financial income after interest rate hikes.
 - C. Business owners experience a significant drop in business income.
 - D. Middle-income households benefit most from rising wages.
 - E. Consumption and expenditure inequality increase more than income inequality.

第三部分：填充題

說明：下列共有 10 格的填充題，每格 5 分。請在答案卷的「非」選擇題作答區依下列之格式寫出答案編號((1)至(10))及對應之答案。所有題目皆「不」需列出計算過程，也不需要說明原因。答錯不倒扣。

(非選擇題作答區)	
(1)	(1)之答案 (不需列出計算過程或說明原因)
(2)	(2)之答案 (不需列出計算過程或說明原因)
(3)	(3)之答案 (不需列出計算過程或說明原因)
...	...
(10)	(10)之答案 (不需列出計算過程或說明原因)

1. 某國遊戲產業只有兩家獨占廠商，廠商 A 生產遊戲主機，定價為 p_a ，生產每單位產量的變動成本為 24，固定成本為 0。廠商 B 生產單一遊戲軟體，定價為 p_b ，生產的固定成本為 10,000，變動成本為 0。玩遊戲同時需要購買一台主機與一份軟體，兩者合稱遊戲系統。消費者對於遊戲系統的需求函數為 $Q=600-P$ 。其中 Q 為遊戲系統數量， P 為系統價格，等於 $p_a + p_b$ 。
- (a) 假設兩家公司分別以獨占方式訂定自己生產的產品價格(A 廠商決定 p_a , B 廠商決定 p_b , 兩間廠商皆極大化自己的利潤)，同時將對方的價格視為外生給定，請問在 Nash 均衡之下 $P (= p_a + p_b)$ 為 (1)，消費者剩餘為 (2)。
 - (b) 假設兩家公司合併完全壟斷遊戲產業，請問讓合併後的廠商利潤最大的系統價格 P 為 (3)，消費者剩餘為 (4)。
2. 某國有許多家廠商提供相同品質的手機門號服務，可視為完全競爭。廠商提供每一門號服務的邊際成本皆為 c 。該國未開放門號可攜，因此消費者若換服務廠商需要付出轉換成本 k (需退租再重新申辦新門號，還要通知聯絡人門號已更換)。為了爭取客戶，假設每間廠商都提供跳槽(與其他廠商解約後向自己申辦門號)的客戶一次性的補貼 s 。假設模型有無窮多期 ($t=1, 2, 3, \dots$)，市場價格固定為 p ，不隨時間改變。跨期折現率為 r ，且消費者只能在第一期($t=1$)選擇要不要換門號。因此考慮補貼後廠商第 1 期的邊際成本為 $s + c$ ，第二期之後邊際成本固定為 c 。
- (a) 市場均衡時須滿足以下兩條件：(i) 消費者換或不換廠商的成本現值相同。即 $(p - s) + p/r + k = p + p/r$ 。等式左邊為換廠商的成本現值，等式右邊為不換的成本現值。(ii) 廠商的利潤現值為 0。請問市場均衡時的 s^* 為 (5)， p^* 為 (6)。(提示：兩個答案皆為模型中部份或全部外生變數(c, k , 及 r)的函數。)
 - (b) 假設所有手機門號廠商都與一網路電商簽定合約，透過發送簡訊協助該電商進行促銷，電商每期支付手機門號廠商每

位客戶廣告費用 e 。請問此時均衡時的 p^* 為 (7)。(提示：答案仍為模型中部份或全部外生變數(c, k, r ,及 e)的函數。)

3. 一位經濟學家過世後留下 100 萬美元的遺產(已扣除遺產稅)與一份遺囑記載以下分配遺產給兩位繼承人 A 與 B 的方法(賽局)。首先，在繼承發生時($t=0$)，由律師擲銅板決定 A 或是 B 先提案。若 A 取得先提案的資格，A 可提出一個分配遺產的方法，若 B 同意則兩人依照共識分配遺產。若 B 不同意，則一年後($t=1$)換成 B 提出一個分配方式讓 A 來決定是否接受。若 A 同意，則兩人依照共識分配遺產。若 A 不同意，再隔一年後($t=2$)，A 有最後一次提案的機會，若 B 仍拒絕，則遺產將由律師捐贈給慈善機構。若 B 取得先提案的資格，仍依照以上方式進行，只是 A 與 B 的角色對調。假設 A 與 B 在決定是否接受對方提議時都只考慮賽局最後自己分到的金額在決策當時的現值(越大越好)。另外，當不論同意或不同意對方的提案賽局最後自己得到的金額現值都相同時，兩人都會選擇同意。假設 A 的折現率為 0.9，也就是說一年後的 100 萬的現值只有 90 萬。B 的折現率為 0.8。雙方都知道自己與對方的折現率。

- (a) 若 B 取得先行動的資格，請問子賽局完美均衡(subgame perfect equilibrium)之下 $t=0$ 時 B 的提案為 (8)。若提案中 A 分 40 萬，B 分 60 萬，請以(40, 60)表示。
- (b) 假設 B 為風險趨避者，期望效用函數為 $U(w) = w^{1/2}$ ， w 為 B 分到的遺產金額。若 B 有一機會收買律師在銅板上作弊讓自己一定能取得先提案的資格，此時 B 最高願意付出 (9) 萬美金給律師取得先提案的資格。給定一 w ，沒有計算機的同學可參考以下表格得到 $w^{1/2}$ 。請將答案四捨五入到整數。
- (c) 設定承接上題，但額外假設法律有特留分的規定，任一繼承人至少應分得 1/4 的遺產，也就是說 A 與 B 提出來給對方的金額不能小於 25 萬。此時 B 最高願意付出 (10) 萬美金給律師取得先提案的資格。請將答案四捨五入到整數。

w	2	4	6	8	10	12	14	16	18	20
$w^{1/2}$	1.4	2.0	2.4	2.8	3.2	3.5	3.7	4.0	4.2	4.5
w	22	24	26	28	30	32	34	36	38	40
$w^{1/2}$	4.7	4.9	5.1	5.3	5.5	5.7	5.8	6.0	6.2	6.3
w	42	44	46	48	50	52	54	56	58	60
$w^{1/2}$	6.5	6.6	6.8	6.9	7.1	7.2	7.3	7.5	7.6	7.7
w	62	64	66	68	70	72	74	76	78	80
$w^{1/2}$	7.9	8.0	8.1	8.2	8.4	8.5	8.6	8.7	8.8	8.9
w	82	84	86	88	90	92	94	96	98	100
$w^{1/2}$	9.1	9.2	9.3	9.4	9.5	9.6	9.7	9.8	9.9	10.0

試題隨卷繳回