

題號： 224
科目： 經濟學(E)
節次： 1

國立臺灣大學 114 學年度碩士班招生考試試題

題號： 224
共 3 頁之第 1 頁

1. (10%) In year 2023, The U.S. GDP is about 27 Trillion dollars, while China's GDP is about 18 Trillion dollars. The economic growth rate of the U.S. was 2% in year 2023, while China's economic growth rate was 5%. Suppose that the two countries' GDP will grow with the rates in year 2023 for the next ten years. Please calculate how long will China becomes the largest economy in the world? (Note: $\ln(27/18)=0.4$, Round to the first decimal place.)
2. (10%) Following the previous question, if the RMB appreciates against the U.S. dollar by 30% in the coming years, how many years will it take for China to become the largest economy in the world, assuming both countries maintain their 2023 growth rates? (Round to the first decimal place.)
3. (10%) Most nations around the world are burdened by deep national debts. As shown in Figure 1, these countries should ideally increase their saving rates to stimulate their economies. However, why is it that most, if not all, countries are unable to achieve higher saving rates in practice?

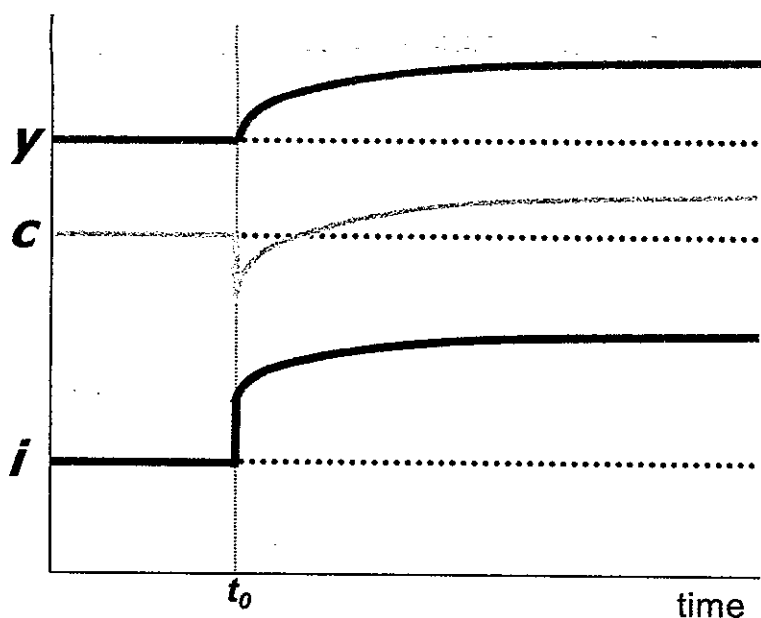


Figure 1

4. (10%) President Trump proposed reducing the U.S. corporate income tax rate from 35% to approximately 17%. According to U.S. economists, such a move is expected to reduce federal revenue by at least \$1 trillion over the next decade. However, during President Biden's administration, the U.S. recorded annual federal revenue of about \$4 trillion against fixed expenditures of about \$6 trillion. For 2024, the U.S. deficit is projected to be around \$2 trillion. If Trump's tax cuts were enacted, the annual deficit would increase to approximately \$3 trillion, further accelerating the growth of U.S. debt. How this policy affects the U.S.'s inflation rates and income inequality in the future?

見背面

題號： 224
科目： 經濟學(E)
節次： 1

國立臺灣大學 114 學年度碩士班招生考試試題

題號：224

共 3 頁之第 2 頁

5. (10%) Given that Trump's tax cuts would enlarge the U.S. annual deficit and further accelerate the growth of U.S. debt, he has proposed several policies to offset these deficits and reduce the debt burden. Please identify and discuss two such policies. In your opinion, are these policies likely to be effective? Why or why not?
6. (35%) Suppose that Matthew maximizes the following objective function which he consumes only good 1 and 2, the consumption of the two goods is denoted by x_1 and x_2 :

$$\max_{x_1, x_2} U(x_1, x_2) = x_1^{0.4} x_2^{0.6}$$

Subject to the budget constraint:

$$p_1 x_1 + p_2 x_2 = m$$

Where the price of good 1 and good 2 is denoted by p_1 and p_2 , and income is m .

- (a) Show whether his preference is well-behaved (i.e., strictly convex and monotonic).
- (b) How much budget will Matthew spend on purchasing x_1 and x_2 ?
- (c) What is the slope of good 1's Engel curve?
- (d) Assume that $p_1 = 2$, $p_2 = 5$, and $m = 100$. Suppose that the government imposes a 20% quantity tax on x_1 . How much of x_1 and x_2 will Matthew consume?
- (e) What is the change in consumer surplus after the imposition of the quantity tax?
- (f) Now, Matthew is endowed with 5 x_1 and 10 x_2 when $p_1 = 2$, $p_2 = 5$. How much x_1 and x_2 will Matthew consume? Is he a net buyer or a net seller of x_1 ?
- (g) Following part (f), how much x_1 and x_2 will Matthew consume when p_1 increases from 2 to 4.

7. (15%) The chemical factory is located upstream of a fishery on a river. The factory's operations produce emissions that pollute the water, causing harm to the downstream fishery. The marginal abatement cost (MAC) for the factory is given by: $MAC = 12 - 2E$, where E is the amount of emissions. The marginal pollution damage (MPD) to the fishery caused by the emissions is:
- $$MPD = 2E, \text{ where } E \text{ is the amount of emissions.}$$

- (a) If the chemical factory has the right to the river, what is the total damage to the fishery in the absence of bargaining?

接次頁

題號： 224
科目： 經濟學(E)
節次： 1

國立臺灣大學 114 學年度碩士班招生考試試題

題號：224

共 3 頁之第 3 頁

- (b) If instead the fishery has the right to the river, what will be the observed level of emissions from the chemical factory, in the absence of bargaining? If the transactions costs of bargaining are zero, how much pollution will the chemical factory emit after bargaining? What is the net social benefit from bargaining?
- (c) Suppose the chemical factory open up a second factory next to the original factory with a marginal abatement cost (MAC) $8 - E$. After bargaining with the fishery, how much pollution will the two factories emit collectively?

試題隨卷繳回