

MACROECONOMICS A
PRACTICE EXAM 2014

based on the exam of 2011

Professor Tom Krebs

The exam consists of 5 (five) questions. Answer all questions.

The exam is worth 100 points.

Use a new sheet for each of the five questions.

Answer all questions in the same language.

On the first sheet, write the language in the top right corner.

Use graphs and label them carefully.

Be short in your answers.

Define symbols and use them in your answers.

Good luck!

Question 1 (20 points)

Consider a developing country that improves the legal protection of investors and the enforcement of property rights. Use the small open economy model to answer the following questions.

- i) What happens to investment, saving, and capital flows in this country? Use a diagram to support your answer.
- ii) Explain how and why the real exchange rate and the trade balance are affected. Use a diagram to support your answer.
- iii) Suppose that the country has pegged its currency to the dollar so that the nominal exchange rate cannot change. What happens to inflation in this country if inflation in the U.S. (rest of the world) is zero?

Question 2 (20 points)

Demographers predict that the fraction of the population that is elderly will increase in Germany over the next 20 years. Assume that the population consists of workers and elderly (retired) individuals.

- i) **NOT APPLICABLE IN CLASS OF 2014!** According to the life-cycle model, what is the effect on the national saving rate? Provide a life-cycle diagram to support your answer.
- ii) Assume that the effect from part i) takes place instantaneously. What is the effect on the steady state values of capital and output per worker according to the Solow growth model? Use a diagram to support your answer.
- iii) Name two government policies that could counteract the effect on the national savings rate so that it would remain constant. Provide a brief explanation.

Question 3 (20 points)

- i) State the two intermediate targets and the three final targets of monetary policy. Which of the three final targets is the main target for most central banks?
- ii) Use the quantity theory of money and the quantity equation to calculate the effect of increasing the money growth rate from 2 percent to 3 percent. State your assumptions clearly.
- iii) Use the AD-AS framework to discuss the short-run and long-run effect of an increase in money supply on output and the price level. Provide a diagram to support your answer.

Question 4 (20 points)

The following questions refer to the classical model of the labor market.

- i) Derive the first-order conditions (FOCs) associated with the firm's maximization problem for a general neoclassical production function.
- ii) Use the FOCs to derive graphically the labor demand function.
- iii) Discuss graphically how a proportional wage subsidy to the firm will affect equilibrium employment.
- iv) Discuss how you could design an empirical test of your result in iii) using only macro data. Name one drawback of such a test.

Question 5 (20 points)

Consider the Cobb-Douglas production function, $Y = A \cdot K^\alpha \cdot L^{1-\alpha}$, where Y is output, K is capital, L is the number of (employed) workers, A is total factor productivity, and $0 < \alpha < 1$.

- i) Write down the growth accounting identity that decomposes growth in output into three different components.
- ii) Suppose that $\alpha = 0.4$ and that output growth is 2%, capital growth is 1%, and there is no growth in L . What is the growth rate of total factor productivity?
- iii) How would you extend the equation from part i) to account for human capital growth? If human capital growth was 2%, how would your estimate of the growth rate of total factor productivity change?
- iv) Briefly outline the general steps needed to predict future output growth.
- v) Name two government policies that may enhance productivity growth. Provide a brief explanation.
- vi) Name two government policies that may increase the growth rate of employed workers at least temporarily. Provide a brief explanation.