

Econ 1015

Second Midterm Exam KEY

Prof Haslag, March 19, 2009

Name: \_\_\_\_\_

Lab Section: \_\_\_\_\_

Student ID#: \_\_\_\_\_

*I promise or affirm that I will not at any time be involved in cheating, plagiarism, fabrication, misrepresentation, or any other form of academic misconduct as outlined in the University of Missouri Rules. I understand that violating this promise will result in penalties as severe as indefinite suspension from the University of Missouri.*

\_\_\_\_\_  
Student Signature

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Date

1. (15 points) In class, I described the relationship between the slope of the production possibilities curve and the slope of the indifference curve. What is the relationship between these two slopes at the best, or optimal, combination of the today's consumption,  $c_1$ , and future consumption,  $c_2$ ? What is the economic interpretation of the slope of the production possibilities curve? What is the economic interpretation of the slope of the indifference curve?

**(5pt) The slope of the production possibilities curve is equal to the slope of the indifference curve at the optimal point.**

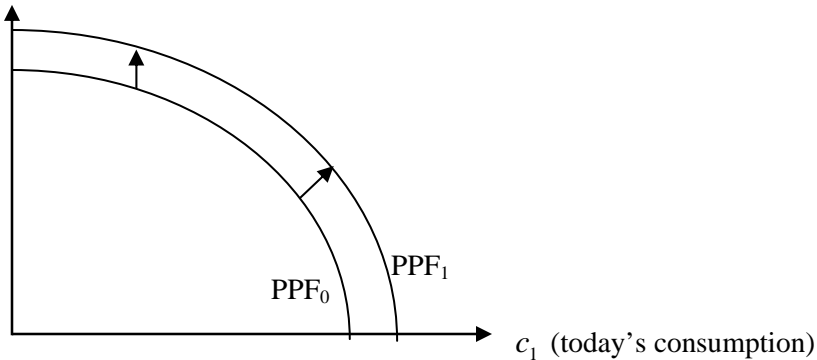
**(5pt) The slope of the production possibilities curve is the rate at which production of extra  $c_1$  increases given the reduction of  $c_2$ .**

**(5pt) The slope of the indifference curve is the rate at which a consumer is willing to give up  $c_2$  for extra  $c_1$ .**

2. (15 points) Use a graph to show how technological progress will affect the production possibilities curve. Show the PPF for the original technology and the new technology.

$c_2$  (tomorrow's consumption)

**Labels (5 pt); Original PPF (5 pt) ; New PPF (5 pt)**



3. (10 points) In class, I presented four factors that affect average productivity growth. List the four items.

**Physical capital (2.5pt), Human capital (2.5pt), technology (2.5pt), management (2.5pt).**

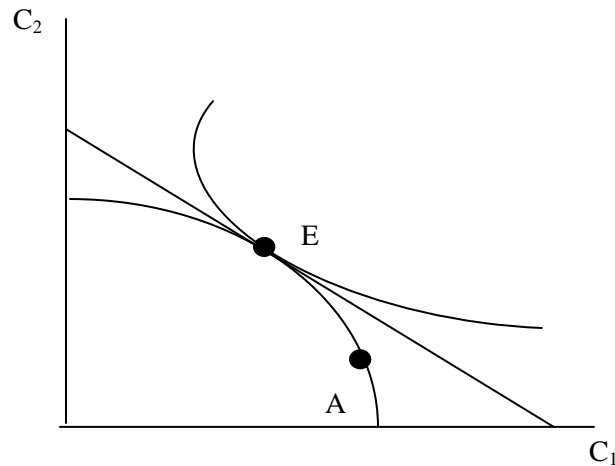
4. (20 points) The table below describes the economy's production function in 2007. Use this information to fill-in average labor productivity for each quantity of labor. Does this production exhibit diminishing marginal product?

Production Function					
Labor quantity		Real GDP		average labor productivity	
5		425			
10		800			
15		1125			
20		1400			
25		1625			
30		1800			
35		1925			
40		2000			

**Using Real GDP/ Labor quantity, the answers are 85, 80, 75, 70, 65, 60, 55, 50. (16 pt)**

**This production exhibits diminishing marginal product. (4 pt)**

5. Use the graph below to answer the following questions:



- a) (5 points) Label the equilibrium point on this graph with the letter E.
- b) (10 points) Consider Point A that lies to the southeast of Point E. Add Point A to the Figure.

At Point A, will the consumer want to buy more or less consumption today ( $C_1$ )? Explain your answer in terms of the marginal utility spent on the last quantity of consumption today compared against the marginal utility of the last quantity spent on consumption tomorrow ( $C_2$ ).

**Consumers want to buy less  $c_1$  at point A.**

**At point A, the marginal rate of substitution is smaller than the slope of PPF. Consumers are willing to pay less for extra  $c_1$  than it costs producers to produce it. Consumers will get higher utility if they reduce their consumption today (move from point A to point E).**

- c) (10 points) If Point A represents the current economic situation in a Brazil, then how Brazil would converge point A to the equilibrium point. Write your description in terms of whether Brazil would be increasing its capital stock over time or reducing its capital stock over time.

**Brazil would be increasing its capital stock over time. When today's capital increases, today's consumption will decrease. Point A will converge to point E.**

6. (15 points) What factor was identified as accounting for why some countries remain poor relative to other countries? In other words, why does convergence not happen across all countries? Give two concrete examples that countries use to implement this factor.

**In some poor countries, property rights are not fully enforced. (7 pt)**

**Two examples: (4pt for each)**

**Improve the legal and political environment. Reduce the excessive government regulation.**

**Monitor the inflation rate. Maintain lower marginal tax rate.**