

AMERICAN UNIVERSITY
Department of Economics

Comprehensive Examination
ECON-009 International Economics
June 2007

Instructions: You must answer both parts of this examination, Parts I and II. Follow the directions for each part carefully. Answer two (2) questions from **Part I. (NO CHOICE.)** Answer five (5) questions from **Part II. (SOME CHOICE.)** Be sure to define all notation and carefully label all graphs. *The time allocations indicate the expected depth of your answers.*

Part I: Long Answers (No Choice)

Long Answer Instructions: There are two (2) *required* questions in this section.
Allotted time: 60 minutes per question.

1. First, state and prove the Heckscher-Ohlin-Vanek (HOV) theorem for the most general case of a C -country, M -factor, N -good model (using matrices), making sure to explain all necessary assumptions and steps in the analysis. Then, answer the following specific questions:
 - a. How do the predictions of the HOV theorem compare with those of the Heckscher-Ohlin-Samuelson (HOS) theorem stated in terms of a 2-country, 2-factor, 2-good model? (You do *not* need to prove HOS mathematically; just state the theorem and explain how it is similar to or different from HOV).
 - b. Why does the HOV theorem suggest that Leontief performed the wrong empirical test when he found his famous “paradox”? Explain *briefly*.
 - c. What are the two “mysteries” found by Daniel Trefler in his empirical tests of HOV and how does he explain them? Be as specific as possible.

2. What “puzzles” were found in the forward exchange rate data by Fama? (Give a *full* derivation, integrating discussion of the empirical results.) Is there a necessary conflict between rational expectations and the empirical results? (Explain why Fama thought so, and offer a model-based response.)

(Part II begins on the next page)

Part II: Shorter Answers (Restricted Choice)

Instructions: Answer the **first two questions** and **three more**, for a **total of five (5)** questions from this section. NOTE: Unless a question specifically asks for math, your answers should focus on detailed graphical analysis supported by rigorous verbal discussion/explanation.

Allotted time: 20 minutes per question.

1. **[required]** Set up the mean-variance optimization problem discussed in class and solve for the optimum portfolio of domestic and foreign bonds. Make sure you explain the role of first-order **and** second-order conditions for optimization in this problem. Derive the minimum variance portfolio, and explicitly relate it to the optimum portfolio. In what sense does this model help us explain the risk premium?
2. **[required]** Demonstrate why factor-price equalization does or does not hold (in a 2-country, 2-factor, 2-good Heckscher-Ohlin-Samuelson model) in any two of the following cases: (a) factor-intensity reversal; (b) different technology between countries; (c) complete specialization. You may focus your analysis on the zero profit conditions and unit cost curve diagrams for each case; be sure to explain the intuition for each one.
3. Briefly present the “real interest differential” model of exchange rate determination, and discuss its empirical and theoretical importance. (How does the model deviate from the monetary approach model, and for what reasons? What was and is the empirical success of empirical implementations of this model?)
4. What are the effects of an increase in the supply of one factor of production on the output of two goods, holding the supply of the other factor constant, in a specific factors model? Compare and contrast the cases of mobile and immobile factors; you may assume a small country with free trade.
5. Consider an infinitely-lived forward-looking representative consumer. How will the current account respond to changes in government tax and spending policies? How do these responses differ from the predictions of traditional models? Provide solid intuition for these differences.
6. What is the optimal trade or subsidy policy in each of the following cases: (a) a large country exporter with perfect competition; (b) a large country exporter with Cournot duopoly. Why are the optimal policies similar or different in these two cases? Discuss (intuitively) in terms of the three types of welfare effects of a trade policy: efficiency costs, terms of trade effects, and imperfect competition (oligopolistic profits).
7. Use the method of undetermined coefficients to solve the monetary approach model under rational expectations when fundamentals follow an **AR(2)** process. (You *must* use an AR(2) data generating process.) Justify each step in your derivation. Referring to your results, give an intuitive explanation of the exchange rate response to a money supply shock.

(Question 8 for Part II is on the next page)

8. Much empirical evidence suggests that the wage premium for skilled labor (i.e., the relative wage q/w of “human capital” H to ordinary labor L) is increasing in *both* industrialized countries (like the United States) *and* developing countries (like Mexico). Present one model in which some kind of shock from “globalization” can cause an increase in q/w in both industrialized and developing countries that are open to international trade. Be sure to explain the nature of the shock that leads to this result in your model.

(End of Exam)