Ph.D. Qualifying Exam July 1998
UCLA Dept. of Economics DEVELOPMENT ECONOMICS

TIME: 4 Hours MAXIMUM POSSIBLE SCORE: 240 points

IMPORTANT INSTRUCTIONS: This examination contains questions totaling 320 points. You are asked to answer questions of your choice, totaling 240 points. If you answer questions totaling any amount up to 240 points, you will be scored on those questions, as usual. If you answer questions totaling M (any amount More than 240 points), you will be scored on all the questions you have answered, and your total score thus obtained will be multiplied by the factor (240/M), to adjust it to a 240 point basis. In short, going beyond 240 points will not automatically add to your grade. It will do so only if the "added" answers help to pull up your average on your "earlier" answers. Also, it can similarly pull down your average.

I. (40 Pts.) Indicate whether you consider each of the following statements to be TRUE (T), FALSE (F), or UNCERTAIN (U). In each case give a brief explanation of your answer. Your grade will depend heavily on your explanation.

1. A project should not be undertaken until its first-year benefits exceed the relevant discount rate times the capital cost of the project.

2. In order to directly apply "separable components" analysis to a component of a project, the benefits of that component should be independent (i.e., neither substitutes nor complements) of those of the remainder of the project.

3. "The appropriate scale of a project is that scale for which the marginal internal rate of return of the project equals the relevant discount rate." This rule should be applied only when the "average" internal rate of return of the project exceeds the relevant discount rate.

4. A project to extend the area served by a given irrigation dam should count as benefits the average productivity of the water delivered to the hectares to be added, and as costs the marginal productivity of the water diverted away from the area previously served.

5. The social opportunity cost of foreign exchange is lower in the case: a) where some of the foreign exchange in question is obtained by borrowing abroad than it is in the case b) where all of the foreign exchange is purchased in the market.

6. The internal rate of return of alternative investments is a valid criterion in the special case of capital rationing, in which the scarcity of capital funds (during which they have to be rationed) lasts only one period, and projects are independent of each other.

7. An old asset should be replaced by a new one when the present value of expected benefits from the new asset exceeds the present value of the expected benefits of the old asset by more than by excess of the price of the new asset over the sale value of the old asset.

8. The social opportunity cost of labor "sourced" from the pool of the unemployed is equal to -U, where U is the rate at which the workers in question were receiving unemployment compensation from the public treasury.

II. (20 Pts.) Show how the "bumping" model can overcome the overprediction by the Harris-Todaro model of the urban unemployment rate in developing countries.

III. (40 Pts.) In a recent issue of the World Economic Outlook on the Asian crises, the IMF has this methodological footnote on real exchange rates in Asia.

> The real effective exchange rate indices shown in Figure 6 are based on consumer price indices, which include the prices of nontradables. They therefore provide imperfect measures of international competitiveness in traded goods and services.

With this quote as background, write a short essay on the different measures and corresponding meaning of the real exchange rate. In particular, be sure to cover the following points:

a) What are the most popular definitions of the real exchange rate? What are they trying to measure?

b) Which ones do you think make more sense?

c) Discuss some of the empirical pitfalls associated with measuring real exchange rates.

d) Evaluate critically the above quote from the IMF (i.e., interpret it and then discuss whether you think it makes sense or not.)

IV. (25 Pts. Total) Consider a country, for simplicity, with a total output y that is constant over time. Assume that the monetary authorities of this country followed a policy of zero increase in the quantity of money, up to a point in time, t*. Then, starting in t*, and without making any special announcements or declarations, they move, perhaps impelled by the need to finance a fiscal deficit, to a policy of increasing the money supply by 2% per month. Draw time paths showing how you think the following variables would behave, in the approach to a new equilibrium.

(15 Pts.)
a) P, the general price level.
b) M/P, real cash balances.
c) $\Delta P/P$, the monthly rate of inflation.

Also answer the following questions

(10 Pts.)
i) Is it necessary that somewhere in the process of adjustment the rate of inflation should overshoot its final equilibrium level?
ii) Is it necessary that somewhere in the process of adjustment the level of real cash balances should overshoot both its initial and its final equilibrium levels?

In answering this question assume you are dealing with a real world situation, i.e., your answer should describe what you think really would happen if this case were generated by some lucky "natural experiment". Also in your answer, assume that the country maintains a flexible exchange rate policy at all points in time.

V. (30 Pts.) Critically examine "strategic" trade theory and discuss the policy implications (if any) for developing countries.

VI. (40 Pts.) There is a widespread belief that the recent Asian crises were different from more "traditional" financial/currency crises and that financial intermediaries played a critical role. As a result, it is argued, these crises should be handled differently. Write a short essay on these issues, which should cover the following:

a) What are the causes of "traditional" financial crises? What are the typical policy measures that have been adopted in response to such crises? What type of models can we use to think about these episodes?

b) In what sense were the Asian crises different? What policies have been adopted in response to these crises? How do they differ from those taken in "traditional" crises? What type of model could one use to think about these crises?

c) What was the role of financial intermediaries? In what sense, if at all, was their role critical? How could it be captured in simple models?

VII. (20 Pts.) How would you estimate the size of the fiscal deficit that the government of a developing country can "successfully" finance by borrowing from the banking system?

a) One objective is the avoidance of inflation. If this is the only objective, what is your estimate of the limiting deficit, as a fraction of GDP?

b) A second objective is not to cut back credit to the private sector as a fraction of total bank credit. What is your estimate of the limiting deficit as a fraction of GDP, if both objectives are to be met?

VIII. (30 Pts.) Critically examine the role of the "direct" and "indirect" routes towards poverty alleviation.

IX. (20 Pts.) Raising reserve requirements has been one of the measures suggested to deal with episodes of heavy capital inflows. Discuss the pros and cons associated with this policy. Briefly compare its merits with those of other measures that may be taken to deal with capital inflows.

X. (20 Pts.) In the aftermath of the Asian crises, Hong Kong and Brazil have aggressively raised interest rates to defend their exchange rate pegs. Discuss the pros and cons of using high interest rates to defend an exchange rate peg.

XI. (35 Pts.) Argentina is now considering a plan under which 10,000 kilometers of freeways will be "built" in 10 years. We put "built" in quotation marks because nearly all of the projects entail the upgrading of roads that are now standard 2-lane highways into 4-lane divided freeways with limited access.

a) Consider a road that now carries traffic of 1.5 million vehicles per year. Assume that the value of the vehicle hour is $4.20 (approximately a truck driver's wage) for both trucks and cars. Assume that the current average speed of vehicles is 60 km per hour, which will increase to 100 km per hour if the improvement is made. What first-year benefit (per kilometer of road) would you assign to the highway improvement due to time saving of existing traffic?

b) The Argentine analysts cite studies reporting an elasticity of unity of vehicular traffic with respect to the number of lanes. Using this figure, what first-year "time-saving" benefit would you impute to the highway improvement, due to newly-generated traffic?

c) Assume that half of the newly-generated traffic comes from diversion of existing traffic from other roads, and half represents totally new trips. Assume also that the traffic is half cars, half trucks and that cars go 8 km while trucks go 3 km on a liter of gas. In your calculations use the existing gasoline tax of 48c per liter. What would be your estimate of the gasoline-tax externality to be assigned, for the first year of operation of the new project? What doubts or caveats would you attach to this figure?

d) The principal way in which this type of road improvement lowers the costs borne by vehicle owners is through extending the useful life of vehicles. For this purpose assume that the traffic is half trucks and half cars, and that the "useful life" of a truck was 600,000 kilometers, and that of a car 200,000 kilometers on the old road. Assume that if fully used on the new road these would be increased by 25%. Finally, assume that the typical car (when new) costs $20,000, and the typical truck $150,000. What is the first-year benefit that you would assign to this type of cost-saving, for the existing traffic per kilometer of a road to be improved? How would you measure this benefit for the newly-generated traffic?

e) Finally, assume that accident fatalities average 10 fatalities per 100 million vehicle kilometers (VKT) traveled on 2-lane highways and 5 fatalities per 100 million VKT on limited access, divided 4-lane highways. Assume that Argentine cost-benefit standards assign a value of $300,000 per fatality saved. What benefit due to a net reduction in fatalities would you assign to the project, per kilometer of highway that is improved. What doubts or caveats, if any, would you place on this estimate?