

Questions for first exam in Economic Growth

The basic Solow model

1. What are the economic assumptions (equations) behind the Solow model?
2. What is a balanced growth path?
3. What (variables) determines the stationary states in the Solow model?
4. What are the dynamics of the Solow model?
5. What is a turnpike (autopista)?
6. What are the implications of the Solow model for relative growth of poor and rich countries?

Data

1. What does the data say about the historical growth of rich and poor countries?
2. Is there convergence? If so, what kind?
3. How does Barro explain differences in growth among countries?
4. How do Parente and Prescott explain the differences in growth among countries?

Overlapping generations (OLG) model

1. What is the basic structure of the OLG model?
2. Why is borrowing and lending restricted to members of the same generation?
3. How does one determine (define) Pareto superiority in the OLG model?
4. How can government bonds (or a tax and transfer system) improve welfare in an OLG model?
5. In an OLG model with production, how is savings determined?
6. What do the time paths look like in a OLG model with production?
7. Write out and solve a simple OLG model with production.

Infinite horizon models

1. How can one defend using an infinite horizon model to model the real world?
2. What do the utility functions and budget constraints look like?

3. What does "recursive" imply about a model?
4. What is a value function?
5. What is a policy function? (a plan?)
6. What conditions of the B-S envelope conditions are needed to be able to solve a value function analytically?
7. What iterative methods can be used to approximately find a value function? (Why do these work?)
8. Explain how to write out and solve (using a computer) a simple infinite horizon growth model.

AK models

1. What is an AK model and how is it different from a Solow model?
2. What predictions about growth does the AK model give?
3. What time paths do models with externalities in the production function give?
 - (a) Under what conditions are the results like the basic Solow model?
 - (b) Under what conditions are the results like an AK model? Why?
 - (c) Explain three types of externalities that give these results
 - i. how are the externalities different?
 - ii. how are the results different?
4. How well does the AK model or the Romer model explain the data?
5. Is there an optimal level of taxes for growth? How is it determined?
6. Why are the results of the Sobelow model different from the basic AK model?
7. In what way is the Harrod-Domar model like an AK model? How is it different?