

Syllabus for Economic Growth Spring 2004

- Alesina, A., and D. Rodrik, 1994, Distributive Politics and Economic Growth, *Quarterly Journal of Economics*, 109, no. 2.
- Alvarez, M. J., and C. Groth, 2004, Too Little or Too Much R&D? *European Economic Review*, forthcoming. Cursory.
- Barro, R. J., and X. Sala-i-Martin, 2003, *Economic Growth*, 2. ed., MIT Press, Cambridge (Mass.). Selected parts, see Course Plan.
- Bergh, J. C. J. M. van den, and R. A. de Mooij, 1999, An Assessment of the Growth Debate. Excerpt from J. C. J. M. van den Bergh, ed., *Handbook of Environmental and Resource Economics*, Edward Elgar: Cheltenham, 643-55.
- Bernard, A. B., and C. I. Jones, 1996, Technology and Convergence, *Economic Journal*, 106, 1037-44.
- Dalgaard, C.-J., and J. Vastrup, 2001, On the Measurement of **F**-convergence, *Economics Letters*, 70, 283-87.
- Dalgaard, C.-J., and C. T. Kreiner, 2001, Is Declining Productivity Inevitable? *Journal of Economic Growth*, 6, § 1-3 and 5. Cursory.
- Jones, Charles I., 1995, R&D-based Models of Economic Growth, *Journal of Political Economy*, 103 (§ 4 and 5 only cursory).
- Jones, Charles I., 1997, On the Evolution of World Income Distribution, *Journal of Economic Perspectives*, 11, no. 3, 19-36.
- Lucas, R. E. Jr., 1988, On the Mechanics of Economic Development, *Journal of Monetary Economics*, 22, only § 1, 4-7 (§ 5 cursory).
- Kremer, M., 1993, Population Growth and Technological Change: One Million B.C. to 1990, *Quarterly Journal of Economics*, 108, no. 3, 681-716. Cursory.
- Perotti, R., 1996, Growth, Income Distribution, and Democracy: What the Data Say, *Journal of Economic Growth*, 1, 149-87. Cursory.
- Pritchett, L., 1997, Divergence, Big Time, *Journal of Economic Perspectives*, 11, no. 3.
- Romer, P. M., 1990, Endogenous technological change, *Journal of Political Economy*, 98, (supplementary issue) S71-S103. Cursory.
- Smulders, S., 1995, Entropy, Environment, and Endogenous Economic Growth, *International Tax and Public Finance*, vol. 2, 319-340.
- Smulders, S., 1999, Endogenous Growth Theory and the Environment. Excerpt from J. C. J. M. van den Bergh, ed., *Handbook of Environmental and Resource Economics*, Edward Elgar: Cheltenham, 610-621.
- Solow, R. M., 2000, *Growth Theory. An Exposition*, 2. ed., Oxford University Press, Oxford. Chapters 10-12.

In addition: Lecture Notes, available on the course website.

The items in the above list (apart from lecture notes) are referred to in the course plan below. Some items are classified as only cursory reading. This implies that you should read them in order to obtain general knowledge of the main point while you do not have to master the technicalities in question.

It is recommended to check the correction lists (referring to the main textbook, articles and lecture notes), available on the course website.

Economic Growth

Spring 2004

The basic text for the course is:

Barro, R. J., and X. Sala-i Martin, *Economic Growth*, 2. ed., MIT Press 2003, henceforth B & S.
In addition journal articles and lecture notes will be used.

Course plan, updated

Author names refer to items in the syllabus list.

I. Setting the stage

- A. Some facts about growth and world income distribution: B & S Introduction.
- B. Quick refresher: Neoclassical production function, the Solow model, Harrod-neutral technical progress, transitional dynamics: B & S 23-44, 51-55.
- C. The concepts of σ convergence and β convergence: B & S 44-56, 462; Dalgaard & Vastrup (2001).
- D. Adjustment speed. Addition of human capital: B & S 56-61.
- E. Divergence – big time; world income distribution: Pritchett (1997), Jones (1997a).
- F. Simple models of accumulation-based endogenous growth and of poverty traps: B & S 61-71, 74-77.

II. Optimizing households. Exogenous technical progress

- A. Brush-up of the Ramsey model (basic representative agent model) with focus on the transitional dynamics: B & S 85-118 (111-118 only cursory).
- B. Household heterogeneity: B & S 118-121.
- C. Government and taxation: B & S 143-149, 150, 1. 19, - 152.
- D. Open economy: B & S 161-65 cursory.

III. Accumulation-based endogenous growth

- A. The AK model: B & S 205-211.
- B. Reduced-form AK models.
 - 1. Two kinds of capital produced by the same technology (to be read in connection with IV.A below): B & S 211-212.
 - 2. Learning-By-Doing (the Arrow model and Romer's 1986 model). Semi-endogenous growth vs. (strictly) endogenous growth. B & S 212-220.
- C. Productive government services and public finance.
 - 1. The Barro 1990 model and a model with congestion: B & S 220-225.
 - 2. Income distribution, political economy and growth: Alesina & Rodrik (1994). cursory: Perotti (1996).
- D. Necessary conditions for accumulation-based endogenous growth in a one-sector model: B & S 232-235.

IV. Two-sector models with physical and human capital

A. The degenerate case: Same technology in both sectors: B & S 239-242.

B. Different technologies.

1. The general case. Cursory: B & S 247-251.

2. No physical capital in the educational sector (the Uzawa-Lucas model):

Lucas (1988), § 1, 4, and 6.

3. Necessary conditions for accumulation-based endogenous growth in a two-sector model.

Cursory: B & S 268-271.

C. Learning-By-Doing and comparative advantage: Lucas (1988), § 5 and 7 (§ 5 cursory).

V. Innovation-based endogenous growth

A. Horizontal innovations: Increasing-variety models.

1. Increasing input variety.

a. A simple model: B & S 285-297.

b. Discussion: B & S 297-302 (301-302 cursory).

c. Erosion of monopoly power: B & S 305-310.

d. The Romer 1990 model with physical capital and knowledge externalities.

Cursory: B & S 310-313, Romer (1990) and Alvarez & Groth (2004).

2. Discussion, scale effects, semi-endogenous growth: Jones (1995) (§ 4 and 5 are only cursory). More cursory reading: Kremer (1993), Dalgaard & Kreiner (2001), § 1-3 and 5.

3. Increasing consumer-goods variety: Solow (2000) 155-171.

B. Vertical innovations: Increasing product quality and creative destruction (quality ladder models):

Solow (2000) 172-186.

VI. More on empirical issues.

A. Catching-up? Country growth in an international context: Bernard & Jones (1996).

B. Growth accounting vs. sources of growth: B & S 433-460 (436-438, 447-456 only cursory).

C. Empirical analysis of a cross section of countries. Cursory: B & S 511-566.

VII. Natural resources and economic growth

A. Renewable and non-renewable natural resources. Limits to growth? Smulders (1999) and Smulders (1995)

B. An assessment of the growth debate: Bergh et al. (1999).

Apart from the B & S book, most of the texts are downloadable for students with access to the course pack at the course website. The relevant chapters from the Solow book and some other texts are collected in 'Course Material' to be bought at Studiekontoret.

In order to go in for the final written examination (four hours, closed book) at the end of the semester it is required that the *term paper* (beginning of April) has been accepted.

Useful *supplementary texts* are:

B. Valdés, *Economic Growth. Theory, Empirics, and Policy*, Edward Elgar 1999 (is more elementary than B & S, includes entertaining discussions) and P. Aghion and P. Howitt, *Endogenous Growth Theory*, MIT Press 1998 (is more demanding than B & S).