Theory of Economic Growth

Course description
This course gives a comprehensive and rigorous overview of economic growth theories and empirics. As an introduction we discuss some basic patterns related to economic growth. The presentation of the main theories starts with basic neoclassical models, treating technological change as exogenous. We next move to various generations of endogenous growth models, including R&D-based growth models and models of international technology diffusion. The implications of the presented theories are confronted with the main findings of the empirical literature.

The main line of the course will be presented in form of a lecture. Most of the exposition will be based on two textbooks: Barro and Sala-I-Martin (2004) and Acemoglu (2009). While discussing some of the topics we will also use selected chapters from Aghion and Durlauf (2005). Individual studying of additional book chapters and journal articles given in the course outline below is not required, but strongly encouraged. Students will also be expected to solve two homework assignments, the aim of which is to facilitate comprehension of the course material and acquire practical skills.

The aim of this course is to familiarize the students with the most important models of economic growth, their implications and limitations, as well as the most recent findings of the empirical literature. Having finished the course, the participants should be able to: discuss the strengths and weaknesses of the main theories of economic growth, formulate hypotheses on the sources of cross-country differences in GDP per capita, discuss the impact of economic policies on the growth performance, read with understanding unsophisticated theoretical and empirical papers on economic growth.

Prerequisites
The level of mathematics used in our main textbook (Barro and Sala-I-Martin, 2004) includes differential equations and dynamic optimization in continuous time. All these methods are discussed in the appendix to this book. Although, in principle, the course participants should be familiar with the Solow-Swan model, one lecture will be spent on its revision.

Evaluation
The main component of the final grade is the final written exam. Unless stated otherwise by the instructor, the exam will cover only the material presented during the lectures. The approximate weight of the exam is 70%. The remaining 30% will be determined by the assignments given during the course (homework).
Course outline and reading list

NOTE: 'Reading' includes the main sources used during the course. In general, items from 'Additional reading' will not be covered, but are aimed to serve as suggestions for students willing to broaden their knowledge and understanding of selected topics. To the best of my knowledge, there are no free (and legal) online versions of the Barro and Sala-I-Martin (2004) and Acemoglu (2009) textbooks. Chapters from Aghion and Durlauf (2005) can be downloaded from Charles Jones’s homepage (http://www.stanford.edu/~chadj/Handbook.html). Most of the journal articles can be found in the JSTOR database, available at the Warsaw School of Economics.

1. Economic growth and development: basic empirical patterns
   Reading: Barro and Sala-I-Martin (2004, ch. I.1 to I.3); Acemoglu (2009, ch. 1)
   Additional reading: Galor (2005, sections 2 and 3); Jones and Romer (2010)

2. Growth empirics; Real convergence
   Reading: Barro and Sala-I-Martin (2004, ch. 10 to 12); Acemoglu (2009, ch. 4); Caselli (2005)
   Additional reading: Easterly and Levine (2002); Hall and Jones (1999); Acemoglu et al. (2005)

3. The Solow-Swan model; The Mankiw-Romer-Weil model
   Reading: Barro and Sala-I-Martin (2004, ch. 1.1 and 1.2); Acemoglu (2009, ch. 2)
   Additional reading: Mankiw, Romer and Weil (1992)

4. The Ramsey-Cass-Koopmans model
   Reading: Barro and Sala-I-Martin (2004, ch. 2.1 to 2.6); Acemoglu (2009, ch. 8)
   Additional reading: Acemoglu (2009, ch. 5-7)

5. Endogenous growth; The AK model
   Reading: Barro and Sala-I-Martin (2004, ch. 1.3 and 4); Acemoglu (2009, ch. 11.1 and 11.2)
   Additional reading: Rebele (1991)

6. The Jones-Manuelli model
   Reading: Barro and Sala-I-Martin (2004, ch. 1.3.4)
   Additional reading: Jones and Manuelli (1997)

7. Externalities and endogenous growth
   Reading: Acemoglu (2009, ch. 11.3 and 11.4)
   Additional reading: Barro and Sala-I-Martin (2004, ch. 5); Lucas (1988)

8. Investment-specific technological change
   Reading: Greenwood, Hercowitz and Krusell (1997)

9. Endogenous technological change
   Reading: Acemoglu (2009, ch. 12)
   Additional reading: Romer (1994)

10. Expanding variety models (the Romer model)
    Reading: Barro and Sala-I-Martin (2004, ch. 6); Acemoglu (2009, ch. 13)
    Additional reading: Romer (1990)

11. Schumpeterian growth models (the quality-ladder model)
    Reading: Barro and Sala-I-Martin (2004, ch. 7); Acemoglu (2009, ch. 14)

12. Scale effects; The Jones critique
    Reading: Barro and Sala-I-Martin (2004, ch. 6 and 7); Acemoglu (2009, ch. 13)
    Additional reading: Kremer (1993b); Jones (1995, 1999); Ha and Howitt (2007)

13. Technology diffusion
    Reading: Barro and Sala-I-Martin (2004, ch. 8); Acemoglu (ch. 18)
    Additional reading: Cohen and Levinthal (1989); Benhabib and Spiegel (2005)

14. Appropriate technology; Directed technological change
    Reading: Acemoglu (2009, ch. 15)
    Additional reading: Basu and Weil (1998); Acemoglu and Zilibotti (2001)
References


