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**Master Colloquium on**  
**“Economic Growth”**  
**Summer Term 2024**

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The colloquium on “Economic Growth” is aimed at all master students currently attending the lecture E453b on “Economic Growth”. Topics include development and growth economics as well as natural resource and environmental economics.

Registration: You have to register online via ILIAS. The application is open from Monday, April 22, 8 am until Thursday, April 25, 8 am. The places are limited to 16 participants. The topics and places are allocated on a first-come-first-serve basis. The kick-off meeting takes place on Friday, April 26.

Presentation: Presentations are limited to 15 minutes so that some time is left for discussion. The presentation should be very focused, and possible extensions should be postponed to the critical discussion at the end. Criteria for passing the colloquium are (i) self-dependence in preparing the presentation, (ii) clarity and persuasiveness of the presentation, and (iii) taking an active part in the discussion.

The aim of the presentation should be that fellow students understand the core of the model, i.e., the topic to be explained and the method used to solve the model. You satisfy your task in the best possible way, if you succeed in inspiring other students for the topic.

Preparation: Two weeks before your presentation, you will receive precise instructions via email. The email will specify which points the presentation should highlight, and it might narrow down the topic: The considered model can be simplified, modified or generalized, depending on the degree of difficulty.

One week before your presentation, you can meet with your supervisor for a (voluntary) preparatory talk. It is important that you have skimmed the paper before the talk. Get in contact with your supervisor to make an appointment.

On the Thursday before your presentation at 8 am, participants are asked to send their slides (in pdf format) to [marit.holler@uni-tuebingen.de](mailto:marit.holler@uni-tuebingen.de).

## **Topics and References:**

### **Topic 1: Capital Accumulation and Convergence (May 17, 2024)**

#### **1. Economic Development and Convergence in the Solow Model**

Barro, R.J. and Sala-i-Martin, X. (2004), Economic Growth, Chapter 1.2.9. - 1.2.11., Chapter 2.6.6.  
and  
Romer, D. (2012), Advanced Macroeconomics, Chapter 1.5

#### **2. Green Technological Progress in the Solow Model**

Brock, W.A. and Taylor, M.S. (2010), The Green Solow Model. Journal of Economic Growth 15, 127-153.

#### **3. Logistic Population Growth in the Cass and Koopmans Model**

Brida, J.G., and Accinelli, E. (2007), The Ramsey Model with Logistic Population Growth. Economics Bulletin 3, 1-8.

#### **4. Technological Progress in the Cass and Koopmans Model**

Barro, R.J. and Sala-i-Martin, X. (2004), Economic Growth, Chapter 2.2-2.5

### **Topic 2: Natural Resources and Sustainability (June 07, 2024)**

#### **5. Optimal Extraction of Scarce Natural Resources: The Cake-Eating Problem**

Perman, R. et al. (2011), Chapter 15.

#### **6. Water: A Replenishable but Depletable Resource**

Tietenberg, T. and Lewis, L. (2012), Chapter 9.  
and  
IPCC (2022), Climate Change 2022: Impacts, Adaptation, and Vulnerability, Chapter 4.

#### **7. Forests: Storable and Renewable Resources**

Tietenberg, T. and Lewis, L. (2012), Chapter 12.  
and  
IPCC (2022), Climate Change 2022: Impacts, Adaptation, and Vulnerability, Cross-Chapter 7.

## 8. The Ecological Footprint

Wackernagel, M., Rees, W. (1996), *Our Ecological Footprint: Reducing Human Impact on the Earth*. Gabriola Island, New Society Publishers.  
(<http://data.footprintnetwork.org>)

**Topic 3: Endogenous Growth (July 5, 2024)**

## 9. Public Infrastructure Investment

Futagami, K., Morita, Y., Shibata, A. (1993), Dynamic Analysis of an Endogenous Growth Model with Public Capital. *Scandinavian Journal of Economics* 95, 607-625.

## 10. Public Infrastructure and Congestion

Irmen, A., Juehnel, J. (2009), Productive Government Expenditure and Economic Growth. *Journal of Economic Surveys* 23, 692-733.

## 11. Public Consumption

Turnovsky, S.J. (1996), Optimal Tax, Debt, and Expenditure Policies in a Growing Economy. *Journal of Public Economics* 60, 21-44.

## 12. Sustainable Development and Limits to Growth

Stokey, N.L. (1998), Are There Limits to Growth? *International Economic Review* 39, 1-31.

**Topic 4: R&D-Based Growth (July 12, 2024)**

## 13. Expanding Product Variety and Growth

Grossman, G.M. and Helpman, E. (1991), *Innovation and Growth in the Global Economy*, Chapter 3.2.

or:

Romer, P.M. (1990), Endogenous Technological Change. *Journal of Political Economy* 98, 71-102.

#### **14. Innovation, Creative Destruction and Growth**

Aghion, P., Howitt, P. (1992), A Model of Growth through Creative Destruction. *Econometrica* 60, 323-351.

or:

Seegerstrom, P.S. (1991), Innovation, Imitation and Economic Growth. *Journal of Political Economy* 99, 807-827.

#### **15. Innovation and Semi-Endogenous Scale-Invariant Growth**

Seegerstrom, P.S. (1998), Endogenous Growth without Scale Effects. *American Economic Review* 88, 1290-1310.

#### **16. Education, Innovation and Endogenous Scale-Invariant Growth**

Stadler, M. (2012), Engines of Growth: Education and Innovation. *Review of Economics* 63, 113-124.