

# Economic Growth

Module 2, 2022/23

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## Course information

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## Course description

Economic growth is one of the most important phenomena in Economics. The fact that income levels in the United States and Western Europe are at least thirty times greater than income levels in much of sub-Saharan Africa is the result of economic growth. Therefore, the question of why some countries grow faster than others is a central one in economic thought. This question was raised in Adam Smith's *Inquiry into the Nature and Causes of the Wealth of Nations* (1776). Although, this question is not a modern issue, economists have been studying economic growth, intensively, since the second half of the twentieth century.

The purpose of this course is to examine and explain theories of economic growth, as well as the closely related empirical literature on development economics. The

first part of the course will cover some exogenous growth theories. We will examine the importance of physical capital, human capital and technological progress for economic growth. Then we move to micro founded growth theories in the second part of the course. The third part of the course will touch part of the endogenous growth theories focusing on poverty trap and long-run growth. The fourth part will examine some important empirical contributions to development economics.

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## **Course requirements, grading, and attendance policies**

The final grade will be based upon:

1. A research project - 75%. The grade will depend on the following:
  - (a) Originality of the idea
  - (b) Its relation to the course
  - (c) Quality of the literature review
  - (d) Methodology: appropriateness and application of tools taught in class
  - (e) The overall story that the project tells.
2. Progress in your project - 10%. The details are provided in the file *Time table of your project*.
3. Home assignments (optional) - 15% Bonus.
4. Attendance and Participation in class - Important.

“Attendance and Participation” centers on two major components; attendance and preparedness. First, you need to attend class in order to reap the full benefits of the course. Second, you should be prepared for each class, having completed the home assignments, the required readings and being prepared to participate actively in the class.

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## Complementary Reading

Elhanan Helpman. *The Mystery of Economic Growth*. The Belknap Press of Harvard University Press, 2004.

Charles Jones. *Introduction to Economic Growth*. W.W. Norton & Company Inc., New York, 2nd edition, 2002.

David N. Weil. *Economic Growth*. Pearson Education, Inc. publishing as Addison-Wesley, 1st edition, 2005.

David Romer. *Advanced Macroeconomics*. McGraw-Hill/Irwin, New York, 3rd edition, 2006.

Samuel Bowles, Steven N. Durlauf, and Karla Hoff, editors. *Poverty Traps*. Princeton University Press, 2006.

Oded Galor. *Unified Growth Theory*. Princeton University Press, New Jersey, 2011.

Abhijit V. Banerjee and Esther Duflo. *Poor Economics*. PublicAffairs, 2011.

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## Course contents

### Introduction and Stylized Facts

- Basic Data on Economic Growth and Development.
- Gur Ofer. Soviet economic growth: 1928-1985. *Journal of Economic Literature*, 25(4):1767–1833, December 1987.

### Growth Accounting

- The Aggregate Production Function.

- Robert M. Solow. Technical change and the aggregate production function. *The Review of Economics and Statistics*, 39(3):312–320, 1957.
- An Introduction to Economic Growth.

#### The Solow-Swan Model (The Role of Physical Capital vs. Human Capital)

- Robert M. Solow. A contribution to the theory of economic growth. *Quarterly Journal of Economics*, 70(1):65–94, 1956.
- Gregory N. Mankiw, David Romer, and David N. Weil. A contribution to the empirics of economic growth. *Quarterly Journal of Economics*, CVII:407–437, May 1992.
- Peter Klenow and Andres Rodriguez-Clare. The neoclassical revival in growth economics: Has it gone too far? In Ben S. Bernanke and Julio J. Rotemberg, editors, *NBER macroeconomics annual 1997*, pages 73–103. MIT Press, Cambridge, MA, 1997.
- Steven N. Durlauf and Paul A. Johnson. Multiple regimes and cross-country growth behaviour. *Journal of Applied Econometrics*, 10:365–384, 1995.
- Xavier Sala-i Martin. The world distribution of income: Falling poverty and... convergence, period. *The Quarterly Journal of Economics*, 121(2):351–397, May 2006.
- David N. Weil. Accounting for the effect of health on economic growth. *Quarterly Journal of Economics*, 122(3):1265–1306, August 2007.

#### Factors Accumulation vs. Total Factor Productivity (The Role of Technology)

- Dale W. Jorgenson and Zvi Griliches. The explanation of productivity change. *Review of Economic Studies*, 34:249–283, 1967.
- Nazrul Islam. Growth empirics: A panel data approach. *Quarterly Journal of Economics*, 110:1127–1170, 1995.
- Mark Bilal and Peter J. Klenow. Does schooling cause growth? *American Economic Review*, 90(5):1160–1183, December 2000.

- Robert E. Hall and Charles I. Jones. Why do some countries produce so much more output per worker than others? *Quarterly Journal of Economics*, 114(1):83–116, 1999.
- Tali Regev and Hosny Zoabi. Talent utilization and search for the appropriate technology. *Macroeconomic Dynamics*, 18(4):863 – 882, June 2014.
- Francesco Caselli and Wilbur J. Coleman II. The world technology frontier. *American Economic Review*, 96(3):499–522, June 2006.
- Francesco Caselli and James Feyrer. The marginal product of capital. *Quarterly Journal of Economics*, 122(2):535–568, May 2007.
- Joseph Zeira and Hosny Zoabi. Economic growth and sector dynamics. *European Economic Review*, 79:1–15, October 2015.

#### Micro Founded Growth Models

- The Ramsey-Cass-Koopmans Model

#### Endogenous Growth Models

- The AK Model
- Paul M. Romer. Increasing returns and long-run growth. *The Journal of Political Economy*, 94(5):1002–1037, October 1986.
- Robert E Lucas. On the mechanics of economic development. *Journal of Monetary Economics*, 22:3–42, 1988.
- Paul M. Romer. Endogenous technological change. *Journal of Political Economy*, 98(5 pt.2):S71–S102, October 1990.
- Charles I. Jones. R & d-based models of economic growth. *The Journal of Political Economy*, 103(4):759–784, 1995.

#### Overlapping Generations Models

- Peter Diamond. National debt in a neoclassical growth model. *American Economic Review*, 55:1126–1150, 1965.

## Inequality and Poverty

- Oded Galor and Joseph Zeira. Income distribution and macroeconomics. *Review of Economics Studies*, 60:35–52, January 1993.
- Daron Acemoglu and Fabrizio Zilibotti. Was Prometheus unbound by chance? risk, diversification, and growth. *Journal of Political Economy*, 105(4):709–51, 1997.
- Shankha Chakraborty and Mausumi Das. Mortality, human capital and persistent inequality. *Journal of Economic Growth*, 10(2):159–192, June 2005.
- Omer Moav and Zvika Neeman. Saving rates and poverty: The role of conspicuous consumption and human capital. *The Economic Journal*, 122:933–956, September 2012.
- Alexey Khazanov, Omer Moav, Zvika Neeman, and Hosny Zoabi. The microfinance disappointment: An explanation based on risk aversion. CEPR discussion paper 12659, 2018.
- Abhijit Banerjee. The two poverties. *Nordic Journal of Political Economy*, 26:129–141, 2000.
- Abhijit V. Banerjee and Sendhil Mullainathan. The shape of temptation: Implications for the economic lives of the poor. *Working paper*, 2010. Working paper.
- B. Douglas Bernheim, Debraj Ray, and Adevin Yeltekin. Poverty and self-control. *Econometrica*, 83(5):1877–1911, 2015.
- V. R. Bencivenga and B. D. Smith. Financial intermediation and endogenous growth. *Review of Economic Studies*, 58(2):195–209, 1991.
- Costas Azariadis. The economics of poverty traps. *Journal of Economic Growth*, 1:449–486, December 1996.
- Costas Azariadis. The theory of poverty traps: What have we learned. Unpublished manuscript, 2001.
- Costas Azariadis and John Stachurski. Poverty traps. In Philip Aghion and Steven N. Durlauf, editors, *Handbook of Economic Growth*, volume 1A. Elsevier, 2005.

- Daron Acemoglu and Fabrizio Zilibotti. Was Prometheus unbounded by chance? risk, diversification, and growth. *Journal of Political Economy*, 105:709–751, October 1997.

#### The Malthusian Theory (Endogenizing Population Growth)

- Quamrul Ashraf and Oded Galor. Dynamics and stagnation in the malthusian epoch. *American Economic Review*, 101(5):2003–41, May 2011.

#### Deep Rooted Factors in Comparative Development: Geography, Institutions, Culture and Diversity

- Moshe Hazan, David Weiss, and Hosny Zoabi. Women’s liberalization as a financial innovation. *Journal of Finance*, 2018. Forthcoming.
- John Luke Gallup, Jeffrey D. Sachs, and Andrew D. Mellinger. Geography and economic development. NBER Working Paper No. w6849., December 1998.
- David E. Bloom, Jeffrey D. Sachs, Paul Collier, and Christopher Udry. Geography, demography, and economic growth in africa. *Brookings Papers on Economic Activity*, 2:207–295, 1998.
- William Easterly and Ross Levine. Tropics, germs, and crops: the role of endowments in economic development. *Journal of Monetary Economics*, 5:3 – 39, 2003.
- Daron Acemoglu, Simon Johnson, and James A. Robinson. The colonial origins of comparative development: An empirical investigation. *American Economic Review*, 91(5):1369–1401, December 2001.
- Daron Acemoglu, Simon Johnson, and James A. Robinson. Reversal of fortune: Geography and institutions in the making of the modern world income distribution. *Quarterly Journal of Economics*, 117(4):1231–1294, November 2002.
- Daron Acemoglu, Simon Johnson, and James Robinson. The rise of Europe: Atlantic trade, institutional change, and economic growth. *American Economic Review*, 95(3):546–579, June 2005.

- Edward L. Glaeser, Rafael La Porta, Florencio Lopez-De-Silanes, and Andrei Shleifer. Do institutions cause growth? *Journal of Economic Growth*, 9(3):271–303, September 2004.
  - Stelios Michalopoulos and Elias Papaioannou. Pre-colonial ethnic institutions and contemporary african development. *Econometrica*, 2013.
  - Stelios Michalopoulos and Elias Papaioannou. National institutions and subnational development in africa. *Quarterly Journal of Economics*, 2014.
  - Sascha O. Becker and Ludger Woessmann. Was weber wrong? a human capital theory of protestant economic history. *Quarterly Journal of Economics*, 124(2):531–596, 2009.
  - Louis Putterman and David N. Weil. Post-1500 population flows and the long run determinants of economic growth and inequality. *Quarterly Journal of Economics*, 125(4):1627–1682, November 2010.
  - Quamrul Ashraf and Oded Galor. The “out of africa” hypothesis, human genetic diversity, and comparative economic development. *American Economic Review*, 103(1):1–46, February 2013.
  - Alberto Alesina, Paola Giuliano, and Nathan Nunn. On the origins of gender roles: Women and the plough. *Quarterly Journal of Economics*, 128(2):469–530, May 2013.
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## Sample tasks for course evaluation

1. Suppose the production function for country A is

$$Q = Q(A, K, L) = AK^{3/4}L^{1/4}$$

- (a) Does this production function exhibit constant return return to scale?
- (b) Write the production function in per capita terms.



- (c) Suppose there is no technological progress, and both capital and labor grow at the constant rate  $n$ . What is the growth rate of output? What are the contributions of labor and capital to the growth?
2. Suppose that the saving rate of a country declines. Starting from steady state in the Solow Model, what will be the effect on the capital labor ratio, output per capita, and output growth? Distinguish between the short run and the long run.
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## **Academic integrity policy**

Cheating, plagiarism, and any other violations of academic ethics at NES are not tolerated.