

Economic Growth and Development,
BA Economics, 3rd/4th year, elective, 3rd
module, winter 2021

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Incentivizing growth and fostering structural changes in the technology economy

- ① Economic problems of the low and middle-income countries
- ② Economic concerns of the developed countries:
 - corporate inequality,
 - innovation in the energy sector,
 - behavioral and cultural factors in political economy and corporate governance.
- ③ Transformation of economic systems:
 - The phenomenon of the US Silicon valley.
 - Reforms in the corporate governance and regulation in Japan.
 - Changes in the planned economies: a Chinese example.
- ④ The reforms in the BRICS countries, with an emphasis on the technology and energy policy in Russia.

- ① Poverty and inequality
- ② Growth through technological change
- ③ Environment and sustainable development
- ④ Human capital: health, labor and productivity
- ⑤ Political economy of innovation
- ⑥ Transformation of economic systems

Empirical skills and data work:

- International databases on the development indicators and the macroeconomic indicators.
- HSE data on companies/households.
- Main casual approaches and applied techniques for econometric analysis: estimating inequality, measuring economic growth and conducting policy evaluation.

Research and analytical skills:

- a critical review of a paper or formulation of the independent research agenda and research hypotheses,
- the search for theoretical and empirical techniques, and for the empirical data in order to investigate the validity of the proposed hypotheses.

Homework: Empirical exercises, essay and its presentation

Mid-term/Final test: General understanding of the course topics and approaches for applied analysis

Final grade:

- 1 Essay and its presentation 40%
- 2 Mid-term 10%
- 3 Class/sections participation 20%
- 4 Final test 30%

- 1 Todaro, M.P., Smith, S.C. (2015) Economic Development. Pearson Series in Economics.
- 2 Ray, D. (2014) Development Economics. Princeton University Press.
- 3 Soderbom, M. et al. (2015) Empirical Development Economics. Routledge Advanced Texts in Economics and Finance. <https://www.empiricalde.com>
 - Stata Datasets and Do files
<https://www.empiricalde.com/chapter-1-introduction>
 - List of Chapters
<https://www.empiricalde.com/list-of-stata-files-by-chapter>
 - Chapters 1,2,3,5,6,8,10 were covered in academic year 2019/2020

Center for Economic and Policy Research (CEPR)

Economic Seminar Series on major issues pertaining to economic growth <http://cepr.net/publications/cepr-briefing-series/economics-seminar-series>

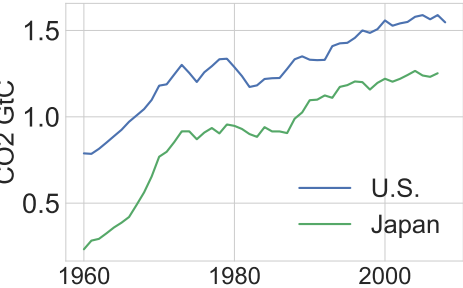
- 1 Growth I: Why economist should worry about it too much (by Dean Baker) <https://www.youtube.com/watch?v=b0a8JFtbJz8>
- 2 Growth II: Growth in the developing world over the last quarter century (by Mark Weisbrot) https://www.youtube.com/watch?v=PZf_lwelydM
- 3 Horatio Alger is dead (by Heather Boushey) https://ia802606.us.archive.org/16/items/HoratioAlgerIsDead/051027-7a_32kbps_lecture.mp3
- 4 The Federal Reserve Board: The Most Important Source of Poverty in the U.S. (by Dean Baker) <https://www.youtube.com/watch?v=WSIQjPpXA8M>
- 5 Intellectual Property: Patents, Copyrights and Other Protectionist Barriers (by Dean Baker) <https://www.youtube.com/watch?v=PAyA9Oegz-o>

Famous novelists and their works on poverty and growth in the US and Europe. Audio files by professional narrators in British English/American English freely available at Librivox, Audiobooks etc.

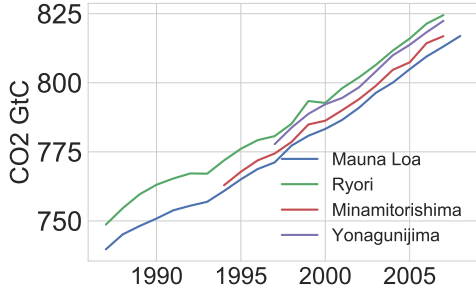
- 1 Charles Dickens. *A Tale of Two Cities*. (London and Paris in the late 18th century and a beautiful love story).
- 2 Jack London. *The Bottom of the Abyss* (A novel on the political economy of poverty in the UK in the early 20th century)
- 3 Horatio Alger. *Ragged Dick* series. (Stories for teenagers about poverty in New York in the end of the 19th century, the conscience of a self-made man and the concept of the American dream).

Energy production within endogenous growth models:
Acemoglu et al., 2016.
Contrasting carbon emissions in the U.S. and Japan

Carbon emissions



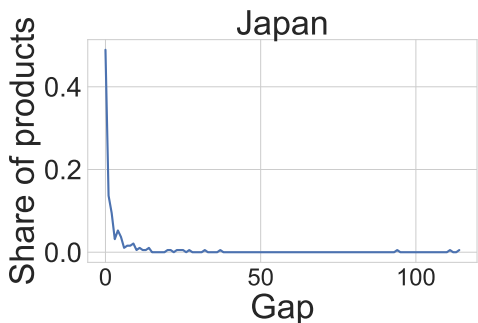
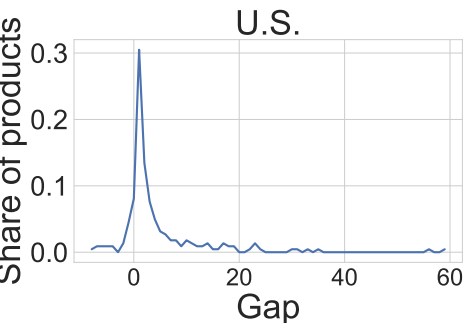
Carbon concentration



Distribution of productivity gaps in the U.S. and Japan

Define $gap_{i,t} = n_{i,t}^d - n_{i,t}^c$,

where $n_{i,t}^d$ and $n_{i,t}^c$ are numbers of innovation steps in the *dirty* and *clean* technology for the product i by time t .



U.S. and Japan: Dirty technology is 1 – 4 steps ahead for most products;

U.S. and Japan: Dirty technology is 10 – 60 steps ahead for a few products;

U.S.: Clean technology is up to 10 steps ahead for a few products.

Contrasting parameters for energy sector from microdata for the U.S. and Japan

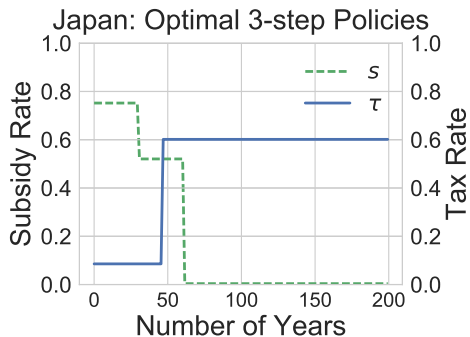
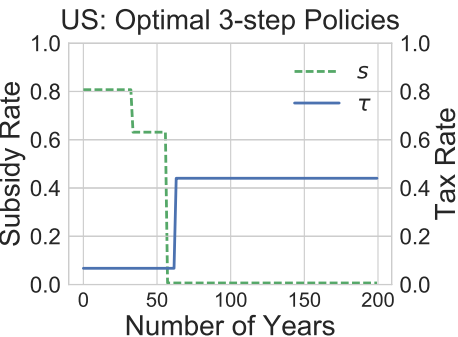
	U.S.	Japan
<i>Patents</i>		
Probability of a radical innovation	0.04	0.024 (whole economy)
Patents per product (citation weighted)	43	39 (manufacturing)
<i>R&D</i>		
Share of R&D labor in the skilled labor	0.055	0.014
Elasticity of innovation output in R&D expenses	0.5	0.3
<i>Production</i> (moments for calibration)		
Entry rate of firms	0.013	0.008
Exit rate of firms	0.018	0.013
Growth of domestic sales per worker	0.012	0.048
Share of R&D expenditure in sales	0.066	0.037

Note: The U.S. data are for energy sector in 1975–2004 and come from Acemoglu et al. (2016). Japanese estimates are based on data for 1989–2012.

Reliance on **carbon tax** rather than on research subsidies due to

- lower elasticity of innovation output in R&D expenses;
- lower probability of a radical innovation.

Results: Contrasting carbon tax and research subsidy for the U.S. and Japan



Research subsidy s is less effective.

So the government relies more on carbon tax τ .

Question 1

- Define economic growth and measures of economic growth
- What are the causes of economic growth in the Harrod-Domar model and in the Solow model?
- * Discuss economic growth in the pre WWII Soviet Union in view of the Harrod-Domar model.
- * Define convergence hypothesis in view of the macroeconomic modelling of growth.
- * List at least two papers on testing convergence hypothesis and contrast their methodology and results. Note: Extra points for papers not covered in the textbooks for the course.
- * What empirical exercises that relate to study of the convergence hypothesis have you done at sections or in your homework assignments? Outline methodology, data and results.

Question 2

- What is the difference between technological progress and productivity?
- Contrast productivity and technological progress in the US and Europe.
- Outline at least two ways of incorporating technological progress in the production function at the macro level.
- * What are microeconomic approaches for quantifying technological progress?

- * What empirical exercises that relate to estimation of technological progress and measuring factor productivity have you done at sections and in your homework assignments? Outline methodology, data and results. In particular, focus on the economic interpretation of the cross-section, panel data and time-series estimates with the country level or cross-country level data.

Question 3

- Define measures of poverty and inequality you know. Explain what dimensions of poverty or inequality are covered by these measures.
- What other variables may be analyzed for the study of economic well-being?

- * Give examples of countries where economic growth is associated with improvement in economic well-being and decrease of poverty/inequality. Give counter examples: countries with economic growth but deterioration in economic well-being and increase of poverty/inequality. Explain reasons for the phenomena.
- * What impediments for growth may be created by poverty and inequality in the US and in Russia? Discuss similarities and country-specific differences.