

Winter 2014  
Special Topic in Development Economics: Productivity and Efficiency Analyses  
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(1) Introduction

Course Description

The objectives of this course are to understand major issues of economic development and to learn analytical tools for productivity and efficiency analyses. We will study practical methods for economic analyses which will be useful for your research activities including your preparation for thesis studies. Tools for growth accounting analysis, productivity analysis, efficiency analysis and effectiveness of public spending analysis are studied. Students will empirically analyze data from developing and transition countries.

The knowledge in intermediate level microeconomics is required. Skills in operating econometric programs and linear programming software are helpful, but not required. At least, familiarity with the use of Excel program is needed.

(2) Class Organization

Weekly Class Schedule and Reading List

Detail explanation will be provided in the first class.

Week 1            Productivity and Efficiency Analyses in Development Studies

Hayami, Yujiro. Development Economics, 2nd ed. Oxford, UK: Oxford University Press, 2001 (Reserved)

Ruttan, Vernon, Productivity Growth in World Agriculture: Sources and Constraints, *Journal of Economic Perspective*, 16(4): 161-184, 2002 (Can be downloaded)

Weeks 2           Sources of Growth in General

Hayami, Yujiro, Vernon Ruttan, Agricultural Development: An International Perspective (Chapters 5, 6 and 7), Johns Hopkins University Press, 1985 (Reserved)

Hayami, Yujiro. Development Economics, 2nd ed. Oxford, UK: Oxford University Press, 2001 (Reserved)

(A method for growth accounting is studied. It is then used for data analyses. You will be asked to conduct your own growth accounting examination as class project, homework.)

Week 3            Sources of Growth in Japanese Agriculture as a Case Study  
Policy Implications to Developing Countries

Yamada, Saburo, The Agricultural Development of Japan: A Century's Perspective (Chapters 2, 3, 4, 5, 6 and 8), University of Tokyo Press, 1991 (Reserved)

(Historical data from the 1880s exist for Japanese agriculture. Yamada (1991) used the data for the growth accounting of Japanese agriculture.)

#### Weeks 4&5 Effectiveness of Public Spending on Economic Development

Fan, Shenggen, Peter Hazell and S. Thorat, Government Spending, Agricultural Growth and Poverty in Rural India, *American Journal of Agricultural Economics*, Vol. 82, No. 4, 2000 (Can be downloaded)

Fan, Shenggen, Somchai Jitsuchon and Nuntaporn Methakunnavut, The Importance of Public Investment for Reducing Rural Poverty in Middle-Income Countries: The Case of Thailand, DSGD Discussion Paper No. 7, International Food Policy Research Institute, 2004 (Can be downloaded from [www.ifpri.org](http://www.ifpri.org))

Fan, Shenggen and Xiaobo Zhang, Reforms, Investment, and Poverty in Rural China, *Economic Development and Cultural Change*, 52(2): 395-42, 2004 (Can be downloaded)

Shenggen Fan, Xiaobo Zhang, and Neetha Rao, Public Expenditure, Growth, and Poverty Reduction in Rural Uganda, DSGD Discussion Paper #4, International Food Policy Research Institute, 2004 (Can be downloaded from [www.ifpri.org](http://www.ifpri.org))

(You will use the findings from your growth accounting study here for understanding the relationship among public spending, productivity growth and social and economic indicators of agricultural and rural development for your country of choice. A homework assignment will be given to the students.)

#### Weeks 6&7 Efficiency Measurement in Development Economics: Frontier Function Approach vs. DEA Approach

Coelli, Tim, D.S.Prasada Rao, and George E. Battese, An Introduction to Efficiency and Productivity Analysis, Kluwer Academic Publishers, Second Edition, 2005 (or First Edition, 1998) (Reserved)

Fare, Rolf, Shawna Grosskopf, New Directions: Efficiency and Productivity, Kluwer Academic Publishers, 2006 (Reserved)

Coelli, Tim, Sergio Perelman, A Comparison of Parametric and Non-parametric Distance Functions: With Application to European Railways, *European Journal of Operational Research*, 117: 326-399, 1999 (Can be downloaded)

Sena, Vania, Stochastic Frontier Estimation: A Review of the Software Options, *Journal of Econometrics*, 14(5): 579-586, 1999 (Can be downloaded)

(The previous models did not assume inefficiency in agricultural production. In the real world, there exist efficiency differences in agricultural production among different producers. We will study methodologies to calculate efficiency differences and sources of the difference. A homework assignment will be given to the students. A class

material with examples developed by the instructor as a practical guide to use Excel program for efficiency studies will be distributed along with example Excel files.)

Week 8 Efficiency Analyses using DEA Radial Measures (Input Orientation, Output Orientation, Scale Economy and Malmquist Decomposition)

Excises will be done in class (computer laboratory).

Week 9 Use of DEA Directional Distance Functions (We might not go deeper with this issue if data analyses using radial measures consume much of study time.)

Fare, Rolf, Shawna Grosskopf, New Directions: Efficiency and Productivity, Kluwer Academic Publishers, 2006 (Reserved)

Fare, Rolf, Shawna Grosskopf, Carl Pasruka, Pollution Abatement Activities and Traditional Productivity, *Ecological Economics*, 62: 673-82, 2007

Week 10 (March 15) Final Examination and Empirical Efficiency Analyses: Applications of DEA Methods, plus Student Presentations

Nin, Alejandro, Channing Amdt, Paul Preckel, Is Agricultural Productivity in Developing Countries Really Shrinking? New Evidence Using a Modified Nonparametric Approach, *Journal of Development Economics*, 71, 395-415, 2003 (can be downloaded)

The Role of International Trade on Environmental Efficiency: A DEA Approach, *Economic Modeling*, 18, 1-18, 2001

### (3) Assessment

Grading Your grades solely depend on the performance of the following items:

Class Participation 10%

Class Project (three separate assignments) 45%

Final Examination (90 minutes closed book examination in class. Students will have options to choose the questions to answer from a set of several questions. A set of sample questions will be also given one week before the final examination for your preparation.) 45%

### (4) Policies

Attendance is critical to understand the class materials. The students are encouraged to go through the class materials before coming to the class. Students are also asked to carry out three class projects for this course. For each class project, they will be given three weeks before the submission of a study report. An example of study reports will be also given to the students when the first assignment is announced. How this study report should be prepared is explained then. The instructor tries his best to provide good study environments. It is up to the students to make full use of the opportunity to learn the subject matter and tools for economic studies.

### Office Hours

Before and after class, or by appointment

(Students are encouraged to closely communicate with the instructor through email about the advancement in understanding the class materials and the progress you make for class projects.)

Note: There is no class on February 22. A make-up class will be given on a different date after making arrangement with students. There might be another make-up class for the missing class for giving the final examination on March 15 before the final examination week.