

Ph.D. course

# Topics in Applied Microeconomic Analysis

Department of Economics and Resource Management (IØR)  
Norwegian University of Life Sciences (UMB), Ås

**Lecturer:** Gerald Shively, Professor, Dep. Agric. Econ., Purdue University, USA  
**Dates:** 7. -16. June 2010 (lectures 09:00-10:30; exercises & readings)  
**Place:** Ås, Norway  
**Credits:** 5 ECTS  
**Course code:** ECN 452  
**Application deadline:** 7. May 2010

## Objectives

This short course is targeted to Ph.D. students with previous experience in economics and an interest in applied microeconomics, especially agricultural development. The course will cover a range of topics in applied microeconomic analysis, with an emphasis on building layers of complexity in empirical models of farm household behavior. Course material will be motivated by daily readings and examples from developing country settings. Topics to be covered include risk and uncertainty; technology adoption; productive efficiency; market participation; intertemporal choice; and investment behavior under uncertainty. Throughout the course the applied emphasis will be on the use and analysis of household survey data. Students will have the opportunity to replicate results from published research to gain practical insights into the research process. The course will make extensive use of data for examples and daily group projects. Data will be distributed (in Stata v9 format) on Day 1. Course evaluation will be based on class participation and a term paper. The due date for the term paper will be announced in class.

## Participation

There is no course fee. Funds are available to support travel and accommodation for external participants. Applications for such support and registration can be directed to [shulic@umb.no](mailto:shulic@umb.no). Please include a budget.

Accommodation can be arranged in the guest houses of UMB. More information about accommodation is available at [http://www.sias.no/english/housing/guest\\_accomodation.html](http://www.sias.no/english/housing/guest_accomodation.html). Participants should apply directly at this page.

Student at UMB can register directly by course code ECN452. For any further questions, please contact Shuling Chen Lillemo:

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## Course schedule

Key readings are marked with \* below. Students are expected to read these items prior to the class meeting in which the reading is to be covered. Other readings are considered background or supplementary.

### *Day 1: Household modeling*

We begin by outlining the basic static model of household production and consumption. We explore issues related to household shadow prices and market participation. We examine issues of separability and non-separability of household production and consumption.

Readings: \*Benjamin D., "Household Composition, Labor Markets, and Labor Demand: Testing for Separation in Agricultural Household Models," *Econometrica*, 60(2): 287-322, March 1992.

\* de Janvry, A., M. Fafchamps, and E. Sadoulet. 1991. Peasant Household Behavior with Missing Markets: Some Paradoxes Explained. *The Economic Journal*. 101:1400-1417.

Singh, I. L. Squire, and J. Strauss, eds. 1986. *Agricultural Household Models: Extensions, Applications, and Policy*. Baltimore: Johns Hopkins University Press.

### *Day 2: Agricultural production*

We spend the session engaged in some hands-on work related to measuring agricultural production and measures of factor productivity derived therefrom.

Readings: \*Skoufias, E. 1994. "Using Shadow Wages to Estimate Labor Supply of Agricultural Households." *American Journal of Agricultural Economics* 76(2): 215-227.

\*Shively, G. E. 1997. "Impact of Contour Hedgerows on Maize Yields in the Philippines." *Agroforestry Systems* 38(1):14-26.

### *Day 3: Productivity and efficiency*

On day 4 we investigate some fundamental questions from the microeconomic development literature. What does it mean to be productive? What does it mean to be efficient? How do we measure these concepts and what factors influence a household's ability to be productive or efficient?

Readings: \* Carter, M. R. 1985. "Identification of the inverse relationship between farm size and productivity: an empirical analysis of peasant agricultural production." *Oxford Economic Papers* 36(1) p. 131-145.

Schultz, T. W. 1975. "The Value of the Ability to Deal with Disequilibria." *Journal of Economic Literature* 13(3): 827-846.

\*Yao, R. and G. E. Shively. 2007. "Technical Change and Productive Efficiency: Irrigated Rice in the Philippines." *Asian Economic Journal* 21(2): 155-168.

#### *Day 4: Technology adoption*

We generalize the basic household model and build a simple conceptual model of investment following Marshall. We consider the role of risk and uncertainty in influencing the adoption of new technologies.

Readings: Feder, G. R. 1980. "Farm Size, Risk Aversion and the Adoption of New Technology Under Uncertainty." *Oxford Economic Papers* 32(2): 263-283.

Feder, G. R. 1985. The Relation between Farm Size and Farm Productivity: The Role of Family Labor, Supervision, and Credit Constraints. *Journal of Development Economics*. 18:297-313.

\*Feder, G. R., E. Just, and D. Zilberman. 1985. Adoption of Agricultural Innovations in Developing Countries: A Survey. *Economic Development and Cultural Change*. 33(2):255-298.

\*Shively, G. E. 1997. "Consumption Risk, Farm Characteristics, and Soil Conservation Adoption among Low-Income Farmers in the Philippines." *Agricultural Economics* 17(2):165-177.

#### *Day 5: Market participation*

We revisit the role of market participation. We examine factors associated with market participation and study the household-level impacts of participation in agricultural markets.

Readings: Bellemare, Marc F. and C. B. Barrett. [http://www.ingentaconnect.com/content/bpl/ajae/2006/00000088/00000002/art0004 - aff\\_1](http://www.ingentaconnect.com/content/bpl/ajae/2006/00000088/00000002/art0004-aff_1) 2006. "An Ordered Tobit Model of Market Participation: Evidence from Kenya and Ethiopia. *American Journal of Agricultural Economics* 88(2): 324-337.

\*Rios, Ana, William A. Masters and Gerald E. Shively. 2009. "Farm Productivity and Household Market Participation: Evidence from LSMS Data." Contributed Paper, International Association of Agricultural Economists' 2009 Conference, Beijing, China, August 16-22, 2009.

#### *Day 6: Competing and synergistic activities*

Rural households often have a range of possible activities in which to engage. One of the main concerns is whether to grow food crops, cash crops, or both. How do households choose their portfolio of activities? How do we model and measure competing and synergistic activities?

Readings: Jones, Govereh and T. S. Jayne. 2003. "Cash cropping and food crop productivity: synergies or trade-offs?" *Agricultural Economics* 38(3): 39-50.

\*Shively, G. and S. Pagiola. 2004. "Agricultural intensification, local labor markets, and deforestation in the Philippines." *Environment and Development Economics* 9(2):241-66.

#### *Day 7: Labor allocation*

Labor is one of the most important factors available to rural households. In many settings, it is the only productive asset available for allocation. How do households decide where and when to allocate their labor? How can we formally model and measure labor allocation?

Readings: Fafchamps, M. 1993. "Sequential Labor Decisions Under Uncertainty: An Estimable Household Model of West-African Farmers." *Econometrica* 61(5): 1173-

\*Shively, G. E. and M. M. Fisher. 2004. "Smallholder labor and deforestation: a systems approach." *American Journal of Agricultural Economics* 86(5):1361-1366.

\*Fisher, M. M., G. E. Shively, and S. Buccola. 2005. "Activity choice, labor allocation, and forest use in Malawi." *Land Economics* 81(4):503-517.

#### *Day 8: Investment under uncertainty*

How should an agricultural household decide whether to invest in capital? Why do traditional NPV models of investment fail to explain observed investment behavior? Here we review a theoretical approach to investment behavior that emphasizes irreversibility and uncertainty.

Readings: Dixit, R. K. and R. S. Pindyck. 1994. *Investment Under Uncertainty*. Princeton: Princeton University Press.

\*Shively, G. 2000. "Investing in soil conservation when returns are uncertain: a real options approach." Paper prepared for a symposium on New Investment Theory in Agricultural Economics, XXIVth International Conference of the IAAE, Berlin, Germany 13-18 August.

#### **The lecturer**

Gerald Shively (shivelyg@purdue.edu) is an applied economist with research interests in tropical forests, agriculture, and land use change. Much of his work focuses on decision making in low-income settings, and the influence of trade and economic policy changes on land use. He works with colleagues in Purdue's Center for Global Trade Analysis to develop novel approaches to integrated assessment (IA) of climate change research, especially the development of methods to evaluate economic costs and benefits of alternative climate change scenarios. He has conducted studies to assess the carbon storage potential of tropical forest and agroforestry systems. He is the author of more than 50 peer reviewed publications and co-editor of the recent book *Land Use Change in Tropical Watersheds: Evidence, Causes, and Remedies* (CAB International, 2005). Jerry currently serves as Co-Editor-in-Chief for the journal *Agricultural Economics* and is an Associate Editor for the journal *Environment and Development Economics*.