

LIAILA S. TAJIBAEVA

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EDUCATION	Ph.D.	Applied Economics	University of Minnesota, Twin Cities	2007
	M.A.	Ag. & Applied Economics	University of Wisconsin, Madison	2000
	B.S.	Economics	University of Minnesota, Twin Cities	1998

FIELDS Environmental and Natural Resource Economics, and Development Economics

DISSERTATION *Growth of an Integrated Economy of Humans and Biological Resources*
Committee: Stephen Polasky (advisor), Paul Glewwe, Timothy Kehoe, and Terry Roe

ACADEMIC POSITIONS Assistant Professor, Department of Economics, Ryerson University Current

PUBLICATIONS Tajibaeva, Liaila “Property Rights, Renewable Resources, and Economic Development,” *Environmental and Resource Economics* Forthcoming.

Tajibaeva, Liaila, Robert G. Haight, and Stephen Polasky (2008) “A Discrete Space Urban Model with Environmental Amenities,” *Resource and Energy Economics* 30: 170-196.

Hamilton, Kirk, Giovanni Ruta, and Liaila Tajibaeva (2006) “Capital Accumulation and Resource Depletion: A Hartwick Rule Counterfactual,” *Environmental and Resource Economics* 34: 517-533.

Polasky, Stephen, Jennifer Schmitt, Christopher Costello, and Liaila Tajibaeva (2008) “Larger-scale Influences on the Serengeti Ecosystem: National and International Policy, Economics, and Human Demography” book chapter in “*Serengeti III: Human Impacts on Ecosystem Dynamics*” edited by Sinclair, A.R.E. et al. The University of Chicago Press.

Hamilton, Kirk, Giovanni Ruta, and Liaila Tajibaeva (2006) “The Importance of Investing Resource Rents” book chapter in “*Where is the Wealth of Nations? Measuring Capital for the XXI Century*”. The World Bank.

WORKING PAPERS Tajibaeva, Liaila “Open Access Renewable Resources and Economic Development,” Submitted.

Tajibaeva, Liaila “Endogenous Property Rights and Strategic Behavior.”

Tajibaeva, Liaila, Robert G. Haight, and Stephen Polasky “Welfare and Biodiversity Tradeoffs in Urban Open Space Protection.”

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Tajibaeva, Liaila “Trade and Renewable Resources.”

Tajibaeva, Liaila “Imperfect Competition in a Spatially Discrete Environment.”

RESEARCH EXPERIENCE	Research Assistant to Stephen Polasky, Applied Economics, University of Minnesota, Twin Cities	2001-2006
	Research Assistant, Agricultural and Applied Economics, University of Wisconsin, Madison	1998-2000

TEACHING EXPERIENCE	<i>Ryerson University</i>	
	Environmental Economics	
	Natural Resource Economics	
	Environment and Economic Growth (<i>Graduate level</i>)	
	Intermediate Microeconomics I	
	Intermediate Microeconomics II	

University of Minnesota, Twin Cities
 Economics for Policy Analysis (*Graduate level*)
 Game Theory (TA for Joseph Ritter)
 Principles of Microeconomics (TA for Donald Liu)

PROFESSIONAL EXPERIENCE	The World Bank, Washington D.C. – <i>Consultant – July 2004 – October 2004</i> <i>Policy and Economics Team, Environment Department.</i> Main author of “ <i>Country Environment at a Glance</i> ” for 6 pilot countries of Bangladesh, Colombia, Egypt, Lao, Tanzania, and Turkey.	
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Opportunities International, a global microfinance organization – *Consultant – Spring 2004*
 Used microfinance data and the World Bank Living Standards Measurement Study in Philippines to determine what proportion of borrowing households are living below the international poverty line.

The World Bank, Washington D.C. – *Consultant – Summer 2003*
Poverty Reduction and Economic Management Group, Europe and Central Asia Region. Prepared regional and cross-country poverty indicators using household budget surveys data.

GRANTS, HONORS & AWARDS	Faculty of Arts SRC Fund Travel Grant, Ryerson University	2010
	Faculty of Arts Scholarly, Research, and Creative Activities Fund	2008
	Research Grant, Ryerson University	
	Faculty of Arts SRC Fund Travel Grant, Ryerson University	2008
	Faculty of Arts SRC Fund Travel Grant, Ryerson University	2007
	Start-up Research Grant, Faculty of Arts, Ryerson University	2006
	University of Minnesota International Students and Scholars Scholarship	1997-1998
	University of Minnesota International Students and Scholars Scholarship	1996-1997
	Academic Achievement Scholarship	1995

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University of Minnesota College of Liberal Arts Dean's List 1995-1998

CONFERENCE & SEMINAR PRESENTATIONS	Natural Resources and Environmental Economics Workshop, McGill University, Montreal, QC, Canada 2011
	Center of Economic Research at ETH Zurich, Conference on Sustainable Resource Use and Economic Dynamics, Ascona, Switzerland. 2010
	Department of Economics, Carleton College, North Field, MN, USA. 2010
	Department of Economics, Brock University, St. Catharines, ON, Canada. 2010
	World Congress of Environmental and Resource Economists, Montreal, QC, Canada. 2010
	Canadian Economics Association Annual Meeting, Vancouver, BC, Canada. 2008
	Canadian Resource and Environmental Economics Study Group, Toronto, ON, Canada. 2008
	European Association of Environmental and Resource Economists Annual Conference, Gothenburg, Sweden. 2008
	European Association of Environmental and Resource Economists Annual Conference, Thessaloniki, Greece. 2007
	Department of Economics, Amherst College, Amherst, MA, USA. 2006
	University of Minnesota Environmental and Resource Economics Seminar, St. Paul, MN, USA. 2006
	Agricultural and Applied Economics Association Annual Meeting, Providence, RI, USA. 2005
	University of Minnesota Environmental and Resource Economics Seminar, St. Paul, MN, USA. 2005

STUDENT SUPERVISION	Undergraduate Thesis Supervision
	Jonathan Lofto, Main Supervisor, 2011
	Elena Yazeva, Main Supervisor, 2010.
	Roshan Jesuthasan, Second reader, 2009.
	Zlatko Zahirovic, Second reader, 2009.
	April Bahadur, Main Supervisor, 2008.
	Daniel Brovedani, Main Supervisor, 2008.
	Angie Park, Main Supervisor, 2008.
	Prandeep Premachandran, Second reader, 2008.
	Nadialyne Magboo, Second reader, 2008.
	Gabriela Witek, Main Supervisor, 2007.
	Stephanie Johnson, Main Supervisor, 2007.
	John Wylie, Second reader, 2007.

Graduate Thesis Supervision
Nicholas Uayan, Second reader, 2010.
Fatemeh Raei, Second reader, 2010.
Yueh-Hsiao Liu, Second reader, 2008.

PROFESSIONAL SERVICE	Referee: <i>Resource and Energy Economics, Environmental and Resource Economics.</i>
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Research Grants Review for Economic and Social Research Council, United Kingdom
Research Grants Review for National Fund for Scientific and Technological
Development, Chile

Editorial Committee Member:

18th Annual Meeting of the Canadian Resource and Environmental Economics Study
Group, 2008.

PROGRAMMING SKILLS MATLAB, MATHEMATICA, STATA, ARC GIS (basic), and GAUSS

ABSTRACTS “Capital Accumulation and Resource Depletion: A Hartwick Rule Counterfactual”

How much produced capital would resource-abundant countries have today if they had actually followed the Hartwick Rule (invest resource rents in other assets) over the last 30 years? We employ time series data on investment and rents on exhaustible resource extraction for 70 countries to answer this question. The results are striking: Venezuela, Trinidad and Tobago, and Gabon would all have as much produced capital as South Korea, while Nigeria would have five times its current level. A specific rule for sustainability – maintain positive constant genuine investment – is shown to lead to unbounded consumption.

“A Discrete Space Urban Model with Environmental Amenities”

This paper analyzes the effects of providing environmental amenities associated with open space in a discrete-space urban model and characterizes optimal provision of open space across a metropolitan area. The discrete-space model assumes distinct neighborhoods in which developable land is homogeneous within a neighborhood but heterogeneous across neighborhoods. Open space provides environmental amenities within the neighborhood it is located and may provide amenities in other neighborhoods (amenity spillover). We solve for equilibrium under various assumptions about amenity spillover effects and transportation costs in both open-city (with in- and out-migration) and closed-city (fixed population) versions of the model. Increasing open space tends to increase equilibrium housing density and price within a neighborhood. In an open-city model, open space provision also increases housing density and price in other neighborhoods if there is an amenity spillover effect. In a closed-city model, housing density and prices in other neighborhoods can decrease if the pull of the local amenity value is stronger than the push from reduced availability of developable land. We use numerical simulation to solve for the optimal pattern of open space in two examples: a simple symmetric case and a simulation based on the Twin Cities Metropolitan Area, Minnesota, USA. With no amenity spillover, it is optimal to provide the same amount of open space in all neighborhoods regardless of transportation cost. With amenity spillover effects and relatively high transportation cost, it is optimal to provide open space in a greenbelt at the edge of the city. With low transportation cost, open space is provided throughout the city with the exception of neighborhoods on the periphery of the city, where the majority of the population lives. A greenbelt still occurs but its location is inside the city.

“The Importance of Investing Resource Rents”

A substantial empirical literature documents the paradox of plenty. Resource-rich countries should enjoy an advantage in the development process, and yet these countries experience lower GDP growth rates post-1970 than less well-endowed countries. In this paper we employ empirical estimations to test two variants of the Hartwick rule – the standard rule, which accounts to keeping genuine saving precisely equal to zero at each point in time, and a version that assumes a constant level of positive genuine saving at each point in time. We show that even a moderate saving effort, equivalent to the average saving effort of the poorest countries in the world, could have substantially increased the wealth of resource-dependent economies.

“Imperfect Competition in a Spatially Distinct Environment”

This paper analyzes the effect of different forms of ownership on a dynamic renewable natural resource that has distinct spatial characteristics. Renewable natural resource migrates among spatially distinct and heterogeneous habitats. The landscape and geographic heterogeneity properties of habitats translate into different species growth rates, migration rates, and harvest costs. I analyze the resource stock and harvest in two dimensions of time and space when (1) the resource is privately owned by two firms that compete in a Cournot market and (2) when it is available for open access exploitation. Due to the spatial characteristics of the model and migration of species, when a firm makes a harvesting decision in a patch that it owns it exerts an externality on the stock in another patch owned by another firm. I find that in an open access environment the resource stock in every patch is rapidly reduced to extinction. In contrast, in a Markov perfect equilibrium with private ownership, though initially the resource stock in every patch is heavily harvested, it eventually converges to a strictly positive steady state. Overall, the results suggest that privatization of an open access resource by a small number of firms in a patchy environment can prevent depletion of renewable resources and significantly increase the efficiency of resource management.

“Larger-scale Influences on the Serengeti Ecosystem: National and International Policy, Economics, and Human Demography”

Political, economic and human demographic forces that often have a profound influence on the Serengeti Ecosystem in Tanzania are driven by local as well as national and international factors. This research examines some of the more important national and international policies affecting the Serengeti Ecosystem, as well as economic and demographic trends. Policies determined at the national level in Tanzania define allowable human uses in various land designation categories. The Serengeti Ecosystem includes many types of land use designations including a national park, game reserves, a game controlled area, open areas, and the Ngorongoro Conservation Area. On the international level, possibly the most important policy that affects the Serengeti Ecosystem is the Convention of International Trade in Endangered Species. We apply the household economic model to evaluate the impact on the Serengeti Ecosystem of three potential changes in policy, economic and demographic conditions. In particular, we explore the effects of: a) changes in anti-poaching policy, b) the establishment of wildlife management areas, and c) and changes in human population dynamics. Of these, anti-poaching policy was shown to have potentially large effects on human welfare and hunting, while the effects of

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wildlife management areas, as modeled here, were quite modest. What is assumed about human demography, in particular whether there is likely to be Malthusian dynamics or a demographic transition, can also have a large impact on system dynamics. The model results point out intriguing possibilities. Further work in understanding joint human-ecosystem dynamics along with better socio-economic data are necessary before we gain confidence in knowing which possibilities are in fact close to reality.

“Welfare and Biodiversity Tradeoffs in Urban Open Space Protection”

State and local governments raise billions of dollars to acquire open space in urban areas, and decision makers need tools to evaluate site selection strategies and tradeoffs. We develop a model of residential location choice, which depends on land value, commuting cost, and open space amenities to analyze the optimal provision of open space and residential land use. We use this discrete-space urban economics model to determine the amount and location of open space with the dual objectives of maximizing household welfare and biodiversity conservation subject to constraints on land availability and property tax rate. We have dual objectives because we assume households do not distinguish biodiversity conservation from a larger set of open space amenities while planners have specific biodiversity conservation goals. Households' welfare is measured by their net benefits. The biodiversity score is a function of heterogeneous quality, amount, and aggregation of natural areas protected as open space. We solve the problem using data from the Twin Cities Metropolitan Area and show how the planner's objectives affect the optimal size and location of open space, measures of household welfare and biodiversity conservation, and spatial patterns of housing and land value. Results for the Twin Cities case suggest that protecting open space to attain biodiversity conservation has relatively little impact on household welfare.

“Growth of an Integrated Economy of Humans and Biological Resources”

This paper analyzes development in a low-income economy endowed with an open-access renewable resource. The growth model has two production sectors, an informal sector in which labor is used to harvest an open-access renewable resource, and a formal sector in labor and capital. If the economy starts with a high level of assets it converges to an interior steady state that preserves the resource. In this case high capital stock and high labor productivity in the formal sector pull labor away from harvesting. However, economic growth may lead to environmental degradation. If the economy starts with little capital it converges to a corner solution steady state and depletes the resource before labor productivity in the formal sector rises sufficiently to lessen harvesting. Production in the formal sector is higher in the corner solution steady state but total consumption and welfare are higher in the interior steady state.

“Property Rights, Renewable Resources, and Economic Development”

This paper analyzes the role of endogenous property rights in the development of an open resource-based economy. I incorporate renewable resources and endogenous decisions on property rights into a convex growth model with the formal and informal sectors. I find that along the transition path to steady state, property rights enforcement is not constant but improves with time as well as involves intermediate property rights

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specification (between open access and perfect property rights). International trade and labor market are driving these endogenous changes. Property rights improve with favorable terms of trade when the economy exports resource services and stronger property rights help maintain the resource stock by deterring illegal harvest. This pushes labor away from the informal harvest sector toward greater participation in the formal sector of the economy. In turn, more labor participation in the formal sector along with capital formation increase the country's output and consumption. Overall, with an open economy and well-functioning institutions, renewable resources have a positive impact on economic growth.