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Fields of Concentration:

Resource Economics
Environmental Economics
Development Economics
Applied Econometrics

Desired Teaching:

Resource Economics
Environmental Economics
Development Economics
Applied Econometrics

Dissertation Title: *Managerial incentives and forest growth effects of forest sector reforms in China*

Expected Completion Date: April 2017

Ph.D. Studies:

Department of Economics, University of Gothenburg, 2012 to present
Supervisors: Associate Professor Gunnar Köhlin and Professor Fredrik Carlsson

Degrees:

M.Sc. in Environmental Management and Economics (2011), Department of Economics, University of Gothenburg, Sweden

Fellowships, Honors and Awards:

Oscar Ekmans stipendiefond Travel Grant, 2015
Stiftelsen Richard C Malmstens Minnes Grant, 2014
Knut och Alice Wallenberg stiftelse Grant, 2014
Stiftelsen Siamon/SEB Stiftelser Travel Grant, 2014
Adlerbertska Stipendiestiftelsen Travel Grants, 2013
Paul och Marie Berghaus donationsfond Travel Grant, 2013, 2015
Best Thesis Award, Department of Economics, University of Gothenburg, 2011
M.Sc. Thesis Grant, Department of Economics, University of Gothenburg, 2011

Research Experience:

Research fellow, Environmental Economics Programme in China (EfD China), Peking University, China, July 2011-August 2012

Project Consultant, “The Cost-benefit Analyses of Selected Environmental Policy Instruments in China”, entrusted by the Ministry of Environmental Protection of China, 2012

Teaching Experience:

Lecturer, Training course on Rural Household Living Standard Survey (Undergraduate level), Sichuan University, China, 2015

Papers:

Yi, Yuanyuan, “Forest Devolution in China: Triggers for Investment or Deforestation?” University of Gothenburg, 2016. For an updated version, click here: [\[Job market paper\]](#)

Yi, Yuanyuan, “Allocative Efficiency or Agglomeration? Devolution of Household Forestland Management and Rental Markets in China”, University of Gothenburg, 2016.

Yi, Yuanyuan, Gunnar Köhlin and Jintao Xu (2014). “Property rights, tenure security and forest investment incentives: Evidence from China’s Collective Forest Tenure Reform”. *Environment and Development Economics*, Vol 19, pp 48-73.

DOI: <http://dx.doi.org/10.1017/S1355770X13000272> , Published online: 14 May 2013]

Stein T. Holden, **Yuanyuan Yi**, Xuemei Jiang and Jintao Xu, 2013. “[Tenure Security and Investment Effects of Forest Tenure Reform in China](#)”, in Holden, S., Otsuka, K., and Deininger, K. (eds), *Land Tenure Reform in Asia and Africa*. pp. 256–282. Palgrave Macmillan. (August 2013).

Hyde, William F., Yongjie Ji, and **Yuanyuan Yi**, 2016. “General Policy Uncertainty: an Overlooked Factor in Forest Management”, conference proceedings.

Xu, Jintao, Klaus Deininger, **Yuanyuan Yi**, Gunnar Köhlin, and William F. Hyde. “Property Rights, Secure Tenure, and Incentives for Forest Management”, in Xu, J., K. Deininger, and W. Hyde (eds), *China’s Collective Forests: Global Lessons from Tenure Reform*. Forthcoming. Washington: World Bank

Works in Progress:

“Managerial Incentives in State-owned Forest Management in China” (with Wolfgang Haba, Gregory Amacher and Jintao Xu) [third dissertation chapter]

“Impacts of Collective Forest Tenure Reform on Household Energy Consumption in Rural China: A Case Study in Yunnan Province” (with Xiaojun Yang, Xiaojie Xu, Jintao Xu and William Hyde) [*China Economic Review*, Revision and Resubmission]

“Triggers and Outcomes to Collective Action in Common-Pool-Resources Management: Lessons from Collective Forest Management in China” (with Gunnar Köhlin and Jintao Xu)

Conference and Seminar Presentations:

World Bank Conference on Land and Poverty, Washington D.C., 2012, 2013, 2014, 2015, 2016
The Environment for Development Annual Meeting, 2011, 2015
Environment and Natural Resources Management in Developing and Transition Economies, CERDI, University of Auvergne, France, 2014

The 28th European Economic Association Meeting, Sweden, 2013
 Agricultural Research for Development: Scales & Diversity, Swedish University of Agricultural Sciences (SLU), Uppsala, Sweden, 2011

Professional Affiliations:

Environment for Development Initiative (EfD)
 European Economic Association (EEA)
 European Association of Environmental and Resource Economics (EAERE)
 Association of Environmental and Resource Economics (AERE)

Languages:

Chinese (native), English (fluent)

Other activities:

Referee service: *Environment and Development Economics*, *Journal of African Economics*, *Journal of Forest Economics*, etc.

Principal investigator, and survey team leader, in Sichuan province, July-August 2015. The main activities include: 1) Case study in State-owned forestry enterprises for the third chapter of my dissertation; 2) Survey in 200 rural households living around state-owned forests and managing collective forests in collaboration with the Environmental Economics Program in China at Peking University.

Student Representative in the PhD Association at the School of Business, Economics and Law (HHDR), 2012-2013.

Team leader, second round survey of collective forest tenure reform in eight provinces of China, August 2011. The two rounds surveys were funded by the World Bank, Ford Foundation, Sida, and State Forestry Administration of China. The collected data is analyzed for the first two chapters of my dissertation.

References:

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Dissertation Abstract

My dissertation “Managerial incentives and forest growth effects of forest sector reforms in China”, investigates the relationship between institutional settings of natural resources management, associated with the environment outcomes. All three papers are conducted in the Chinese context, where forests are categorized as collective forests and state forests by the ownership.

In the collective forest areas, the common-pool resources had been through reform attempts of privatization and re-collectivization. Since 2003, the Collective Forest Tenure Rights Reform ambitiously devolved village-collectively owned forestland to household management, with rigorous initiatives to secure ownership rights and encourage forestland transfers. In the state forest areas, forests are managed by state-owned forest enterprises. The local governments control the enterprises in terms of their tax payments and their responsibilities as state-owned enterprises. The central government owns the forests and is solely interested in their conservation. Economic and resource crises have been a long-lasting, rampant problem that needs to be properly addressed in state forest areas.

Sustainable and efficient management of forest resources is important to achieve the goal of economic growth and conservation of the environment. The first Chapter analyzes the effect of the devolution of forestland to household management on owners’ forest investment and as a result on forest conditions. Chapter Two assesses whether the devolution reform of forestland to household management has an effect on allocative efficiency and household welfare through participation in rental markets. Chapter Three investigates how the institutional setting in state forest management induces the state-owned forest enterprises to align more with local governments than the SFA and utilizes information asymmetry to devastate natural resources.

In Chapter One (my job market paper), **Forest Devolution in China: Triggers for Investment or Deforestation?**, I investigate whether and how the individualized forestland devolution in China increased investment in forestland and in turn improved forest resources. Since early 2000s, authorities have devolved forest to household management in southern collective forest areas. The analysis is based on household survey data in eight provinces, covering before and after the forest tenure reform, and spatial data on forest cover and stock volume changes during 2001-2012. I find the devolution reform resulted in more investment and thus forest rise. The average treatment effect of the reform on annual investment per area unit (*mu*, 1/15 ha) of forestland, is more than 400 Chinese Yuan. The tenure security effect of the reform is over 300 Yuan, comparing the owners holding a forestland certificate and those with no reform nor certificate. The reallocation effect, in terms of a household receiving more forestland, is identified to increase per-*mu* investment by about 4 days and 100 Yuan. As a result on forest conditions, a 1 percent more forestland devolved to household management in one county contributes to forest cover increase by 26 percent and better forest quality by 15 percent.

In Chapter Two, **Allocative Efficiency or Agglomeration? Devolution of Household Forestland Management and Rental Markets in China**, I evaluate whether the Chinese devolution reform of forestland to household management improves allocative efficiency and household welfare through participation in rental markets. The study utilizes a two-period survey dataset of 1,373 households in three Chinese provinces. First I examine the determinants of household rental market participation by random effect ordered probit. Multinomial logistics regressions, Probit of rent-in and rent-out participation, Tobit of the area rented-in and rented-out, respectively, are applied to check the sensitivity of the results. I then use Propensity Score Matching methods to identify the causal impact of rental participation on household welfare because of the self-selection of rental status. The study finds that forestland rental markets in China improved allocative efficiency, in terms of factor equalization and equity. Specifically, doubling the size of endowment of per-labor forestland yields a 1.3 percent increase in the likelihood to rent-out. Doubling their forestry productivity is associated with a 14 percent increase in the probability of renting-in. Similarly, a household with smaller size landholdings is 1.4 percent more likely to rent-in; lower

productivity drives the renting-out likelihood up by 13 percent. No evidence was found on any agglomeration of forestland to richer, or bigger, or more powerful households. The positive and significant impact of renting forestland on household per capita income (of 1,893 CNY) is consistent with the 10 percent reduction in the likelihood of per capita income falling below the village average. Given the still very low participation in the forestland rental market, there is scope for policies to reduce transaction costs and address market imperfections.

In Chapter Three, **Managerial Incentives in State-owned Forest Management in China**, (joint with Wolfgang Habla, Gregory Amacher, and Jintao Xu), we explore the problem of forest management in state forest enterprises (SFEs). SFEs respectively the managers of the SFEs face two principals – the central government in the form of the State Forest Authority (SFA) and the local government. The SFA owns the forests and is solely interested in their conservation, while local governments physically control the SFEs in terms of their tax payments and their responsibilities as state-owned enterprises. An SFE manager thus faces a trade-off: on one hand, he must consider the SFA’s ecological targets imposed on the SFE, on the other hand, he can cater to the interests of the local government in order to get promoted into a higher office in the local government. We establish a political career concern model for an SFE manager (the agent) who needs to solve this trade-off. We hypothesize that more asymmetric information on the part of the SFA (because the state of the forest is more difficult to monitor than financial data) induces managers to align more with local governments than the SFA by logging more trees to produce economic profits. We exploit empirical survey and spatial data to test these hypotheses. The survey data comes from the economic survey of 24 SFEs in Northeastern China covering the period 1980-2008. We use additional satellite remote sensing data on forest cover and vegetation index during the same period, matched by the maps of forest areas controlled by the 24 enterprises. Using the area of forests managed by the SFEs as the proxy variable for the degree of information asymmetry, preliminary fixed effects regressions show that the larger the managed forest area, the higher is the annual harvest volume. Regarding the closeness of the alliance between managers and local governments, we observe that the SFE’s profits that are handed over to the local government as a share of total revenue is determined by the SFEs themselves (in addition to any exogenous capital income taxes that need to be paid by the SFE). Preliminary linear regressions suggest that a 1% increase in the SFE’s turned-over profits to the local government in the previous period significantly leads to 0.13 percent more harvest per hectare in the next period.

Works in Progress:

“Managerial Incentives in State-owned Forest Management in China” (with Wolfgang Habla, Gregory Amacher and Jintao Xu) [third dissertation chapter]

“Impacts of Collective Forest Tenure Reform on Household Energy Consumption in Rural China: A Case Study in Yunnan Province” (with Xiaojun Yang, Xiaojie Xu, Jintao Xu and William Hyde) [*China Economic Review*, Revision and Resubmission]

In this paper we study the impact of the devolution of forest management rights from village collectives to rural households on rural energy consumption. Devolved forest tenure has an enhancing effect on individual forest management and subsequent increase in forest production and eventual consumption. The increase in any forest products may contribute to improving the welfare of the self-consuming households. We assess the impact of the forest devolution on the consumption of fuelwood, and its substitutes in a relatively poor province in southwestern China. We employ a double-log econometric model to evaluate the determinants of household energy demand. Our study finds that household fuelwood consumption does increase with the greater extent of devolution. It increases for both lower and higher income households, while higher income households benefit more. Limited evidence is found that households begin to substitute alternative commercial fuels for fuelwood when those fuels are available. Compared to other developing countries where forest devolution refers to community management, our

study differs and contributes to the literature as a unique context where forest management is devolved to households; and provides an alternative solution to common-pool-resources management.

“Triggers and Outcomes to Collective Action in Common-Pool-Resources Management: Lessons from Collective Forest Management in China” (with Gunnar K öhlin and Jintao Xu)

Our aim is to study determinants and consequences of collective action in devolved forest management in China since 2003. Collective action refers to households’ cooperative decisions in managing forestland jointly on a voluntary basis, as defined in the “Partnership” tenure-type during China’s collective forest tenure reform. We will analyze a two-period panel data from 3,000 randomly surveyed households in 256 villages. First, for households being given individualized forestland parcels, under what conditions would they voluntarily coordinate and form “Partnership” to manage their forestland parcels jointly? Answers to this question consider heterogeneity in parcel property rights, household management skills, opportunity costs, social capital, as well as village size and pre-existing preferences whether pro-cooperative. We apply probit and logistic regressions on the likelihood of a forest parcel under “Partnership”-tenure conditional on those factors. Second, consequences of collective action on welfare benefits will be investigated on household forestry income, per capita income, income structure, and poverty status, as left hand-side variables. We use a propensity score matching (PSM) method to correct for potential bias from households self-selecting into “Partnership” management because of individual-specific ability. We use the same data as in the first paper of my dissertation. We expect clear and secured property rights reduce transaction costs and incentivize collective action; collective action optimizes household resources allocation and has positive effect in income growth and poverty alleviation. Follow-up policies of the forest tenure reform can focus on reducing transaction costs and facilitate cooperation in local needs, under an overall objective as sustainable and efficient forest management and welfare improvement for resource-dependent population.