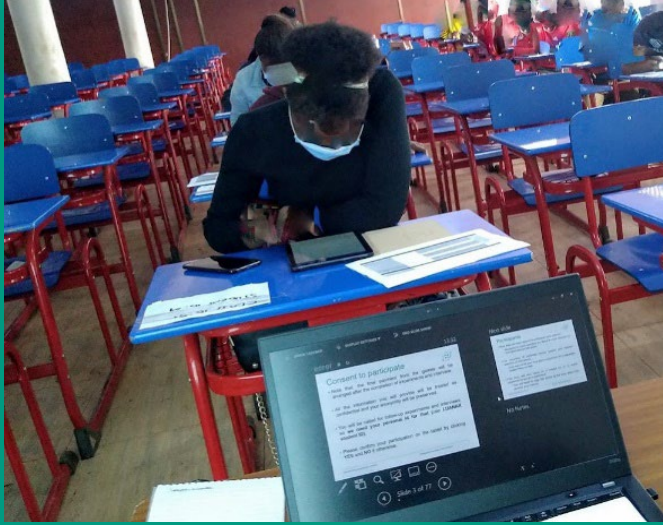


Centre for Land Tenure Studies

Norwegian University of Life Sciences (NMBU)



2022 Annual Report



Table of Contents

Summary of activities in 2022	i
Centre for Land Tenure Studies	ii
Board of the Centre for Land Tenure Studies	ii
People at CLTS	ii
Mission	iii
2022 Report	1
Faculty Activities at NMBU	1
School of Economics and Business	1
LANDSAM – Department of Property and Law	2
LANDSAM – Noragric	2
MINA: Department of Ecology and Natural Resource Management	3
Journal Papers and Book chapters	4
CLTS Working Papers	24
CLTS Papers statistics at S-WoPEc and RePEc	33
CLTS Websites	34

Summary of activities in 2022

The Centre for Land Tenure Studies (CLTS) published in 11 working papers and 14 peer reviewed journal articles. The published worked covered issues around land tenure policies, land markets, housing markets, environmental reliance, and REDD+, environmental reliance, climate smart technologies, risk and time preferences, trust and social preferences.

The CLTS papers and reports are accessible through the CLTS webpage, the Scandinavian Working Papers in Economics (S-WoPEc), the library (Brage) of the Norwegian University of Life Sciences (NMBU), and the Land Portal webpage (see: <https://landportal.org/organization/centre-land-tenure-studies>). In addition to these access points, Econstor also started registering and distributing information about the CLTS publications in 2021 (see: <https://www.econstor.eu/handle/10419/242695>). The CLTS also published three books in print.

Statistics on visibility show that on average, people viewed the abstracts 39 times in 2022 compared to the 92 views in 2021, which represents a 57 percent drop between the years. However, in 2022 there were more views in the first quarter of the year compared to the last quarter following upload of papers. For paper downloads, the centre achieved a 37 percent increase, particularly in the last quarter of the year. The long-term trend shows unique patterns within the years since 2012. There are also different spikes within the years. However, we should note that much of the distribution of the CLTS WPs also goes through ResearchGate as authors upload the papers there.

The faculties working on CLTS related work also reported several activities. The School of Economics and Business graduated one PhD student, who worked on land related studies. The School was also involved in several projects supported by the Research Council of Norway and NORHED II. In LANDSAM, the Department of Property and Law is involved in projects focusing on (1) rules, norms, and cooperation in outlying grazing areas, and (2) the Planning and Building Act between demand, land policy and sustainability. The Department of Property and Law also graduated one PhD who worked on “Cadastral records of cases conducted by the land consolidation court”. Again, under LANDSAM, Noragric and Byreg departments collaborated on an NFR research application focusing on sustainable recreation around the Oslo Fjord. In MINA, the Department of Ecology and Natural Resource Management worked on a collaborative project that represents a multidisciplinary approach to diagnosing and improving policy and management decisions for dry forestland and resources in the face of climate change. Two PhD students are working in the project since August 2021.

Centre for Land Tenure Studies

The Centre for Land Tenure Studies was opened at NMBU (earlier UMB) on the 27th of June 2011 resulting from a joint initiative by researchers at the Department of International Environment and Development (Noragric), the School of Economics and Business, and the Department of Landscape Architecture and Spatial Planning. In 2012 CLTS was joined by the Department of Ecology and Natural Resource Management.

Board of the Centre for Land Tenure Studies

- Eirik Romstad (chair), School of Economics and Business
- Knut Boge, LANDSAM
- Meley Mekonen Rannestad, MINA

People at CLTS

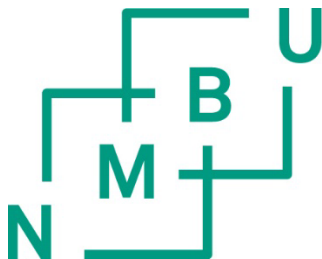
Core team: Stein Holden, Espen Sjaastad, Meley Mekonnen Rannestad.

Associates: Bernt Aarset, Arild Angelsen, Tor Arve Benjaminsen, Erling Berge Einar Bergsholm, Knut Boge, Meley Mekonen Rannestad, Per Kåre Sky, Sølve Bærug, Einar A. Hegstad, Darley Jose Kjosavik, Eirik Romstad, Dag Einar Sommervoll, Håvard Steinsholt, Steinar Taubøll, Arild Vatn, Pål Vedeld.

Post doc researcher: Mesfin Tilahun, Sarah Tione, and Sam Katengeza

PhD students:

Administrative support: Sarah Tione



Norwegian University of Life Sciences
Centre for Land Tenure Studies

Mission

The Centre for Land Tenure Studies (CLTS) at NMBU is established to further the study of land tenure. Land tenure studies define a broad and complex field of study cutting across many disciplines. For CLTS this entails, but is not limited to, the following activities:

- Provide a common arena for discussing land tenure issues, including a series of seminars directed to present new research or important theoretical perspectives. This may be designed as part of an educational program.
- Promulgate a joint series of working papers.
- Support international publication of articles and books.
- Develop and conduct joint courses at both Master and PhD level.
- Initiate and support exchange of researchers.
- Participate in research networks related to land tenure.
- Maintain a public list of collaborating institutions and researchers.
- Initiate and develop applications for research funds to support basic research on land tenure both by our own efforts and in collaboration with other research groups working on land tenure questions.

In its activities, the centre will use English as its working language as far as practically possible.

In short, we may say that “the mission of the Centre for Land Tenure studies is to enhance collaboration across departments at NMBU; to strengthen the visibility of NMBU activities within the field of land tenure; to strengthen NMBU’s international collaboration and networks within the field; to contribute to research and knowledge generation on land tenure issues; to help build capacity in the South and in Norway within the field; to disseminate policy lessons, and to contribute to policy debates”.

2022 Report

Faculty Activities at NMBU

School of Economics and Business

The main activities of relevance in our School were under the NORAD NORHED capacity-building program, Climate Smart Natural Resource Management and Policy (CLISNARP), a collaboration with Mekelle University in Ethiopia and LUANAR University in Malawi from where a number of PhD-students come to take their PhDs in our School. While this project should have completed in 2021, the civil war in Ethiopia caused a closedown of Mekelle University and four of the PhD-students on the project were unable to complete their PhDs, two these are PhD-students in our School. This situation lasted through 2022, although a peace deal between the Ethiopian Government and the Tigray Region in November 2022 created hope for the facilitation of the completion of the degrees for these PhD students.

The other major activity in the School was the research project “Youth Business Groups for Sustainable Development: Lessons from the Ethiopian Model” (YOUTHBUS)(2018-2022), funded by the Research Council of Norway under the NORGLOBAL2 program. The fieldwork under the project in Tigray Region in Ethiopia focuses on resource-poor rural youth that have been offered to establish formal businesses as primary cooperatives. The project implements surveys and experiments for a large number of such youth business groups and group members in order to understand factors influencing their varying degree of success. It also planned training experiments implemented as Randomized Control Trials with a focus on leadership training, female group member empowerment and risk management. The implementation had started but not finished when the civil war started in November 2020, and it has been impossible to follow up any of the planned field activities after that throughout 2022. The project has therefore focused on the analysis of the already rich survey and experimental data. A substantial amount intended for the fieldwork is locked in the closed down bank in an account of Mekelle University (which also is closed). We have asked for a one-year extension of the project in the hope that we will be able to follow up the fieldwork or at least make a study of what has happened to the more than 3000 youth business group members that we have collected data from. Several papers have been published in international journals as well as CLTS Working Papers based on this project. The papers focus on behavioral economics (risk and time preferences, social preferences and trust, and land tenure issues of importance for the youth livelihoods and business groups as an organizational model.

The School is also involved in another research project funded under NORGLOBAL2 (Research Council of Norway), “Access to seeds: from Emergencies to Seed System development” (ACCESS), which is the responsibility of LANDSAM (Noragric). The School is responsible for one PhD student (Clifton Makate) recruited on the program and work on seed access in Ethiopia, Malawi and Tanzania based on nationally representative surveys (LSMS). Clifton Makate defended his PhD dissertation in December 2022.

Two new NORAD-funded capacity-building projects under NORHED II received funding and started in August 2021. One of these projects, Experiments for Development of Climate Smart Agriculture (Smartex), is a collaboration project with LUANAR in Malawi and focuses on land and water rights related to irrigation and on climate-smart agriculture. Sarah Tione and Samson Katengeza, who received their PhDs under the CLISNARP project are postdocs on this project. The pandemic caused a delay in the startup of fieldwork from 2021 to 2022. Extensive fieldwork took place in 2022 but new requirements for ethical approval by Institutional Review Boards (IRBs) before data collection combined with the fact that neither NMBU or LUANAR had such an IRB has caused a halt in the fieldwork to get such boards established to get approval before the remaining fieldwork is implemented. The main component remaining is a study of land rights and land management in irrigation projects in Shire Valley.

LANDSAM – Department of Property and Law

The department of Property and Law has been involved in the following research projects:

- FUTGRAZE – Towards a Future for Common Grazing – rules, norms and cooperation in outlying grazing areas – 2018 - 2021
- LANDTIME – The Planning and Building Act between market demand, land policy, sustainability, temporality, and intergenerational justice 2021 – 2025.

LANDTIME's main objective is to investigate the Norwegian planning system's functional capacity to handle multiple temporalities of spatial development, hereunder its set of plans and instruments, the role of property and property rights for public planning, and related challenges in different geographical contexts.

LANDTIME's secondary objectives are to explore the planning system from a temporality perspective, as the content of plans, temporalities of the planning processes, including transmission between plans, empirical investigations of the interplay between public spatial planning and private property, and property rights, and how the two systems lay out the premises for temporality management in terms of market demands and intergenerational justice.

LANDTIME will also investigate whether the PBA is an adequate framework for regional and municipal planning to facilitate sustainable industrial and business development, and how the PBA and relevant sector legislation handle development conflicts, i.e., environmental protection and sustainability vs. equity, social and intergenerational justice.

LANDSAM – Noragric

Starting in 2021 Noragric, along with the Byreg department at LANDSAM, participated in an NFR research application focusing on sustainable recreation around the Oslo Fjord. The project has since received funding, and property issues are likely to be a significant

element in the research. Due to turbulence in the NFR, the start-up of the project was delayed till 2023.

MINA: Department of Ecology and Natural Resource Management

The department has been involved in the following relevant research project: “Towards a climate-smart policy and management framework for conservation and use of dry forest ecosystem services and resources in Ethiopia”, 2020 – 2024, funded by the Research Council of Norway under the NORGLOBAL2 program. In this project, MINA is partnering with CICERO-Center for International Climate Research (Norway), ICRAF - World Agroforestry Centre (Kenya), MU-Mekelle University (Ethiopia), and HU-Hawassa University (Ethiopia).

This project represents a multidisciplinary approach to diagnosing and improving policy and management decisions for dry forestland and resources in the face of climate change. The main objective is to design an integrated analytical framework and develop and utilize a decision support tool that enables ex-ante assessments of policies, management measures, resource use plans, technologies and trade-offs and synergies between global environmental, national economic, and local livelihood objectives related to dry forest land ecosystem services in Ethiopia.

Two PhD students are working in the project since August 2021 in the following PhD projects.

1. Climate Smart Management of Dry Forest Ecosystem Services in Ethiopia
2. Socio-ecological analysis of changes in dry forests in Ethiopia

The students are currently relying on data generated through a previous NORHED project in Tigray, Ethiopia, the main study area, as field work is impossible for the time being due to the ongoing war in the region. Moreover, the students and their main supervisor (Meley Mekonen Rannestad) are presenting the following papers at the Scandinavian Society of Forest Economics (SSFE) biennial conference, November 29 - December 2, 2022 in Umeå, Sweden.

Under Multiple Forest land Use Session

1. **Optimal grazing exclosure period for optimum herbaceous biomass production in the highlands of Tigray, Ethiopia** (*Meley Mekonen Rannestad*)
2. **Spatial differences in forest ecosystem services distribution in a threatened dry Afromontane Forest in Tigray, Ethiopia** (*Bianca Wulansari Kassun*)

Under Perspective on Forests Session

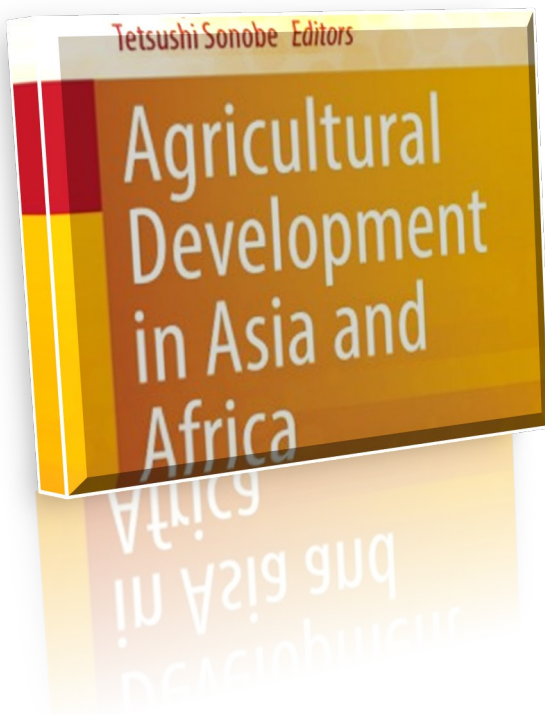
1. **Drivers of change in dry forests of East Africa: a systematic literature review** (*Maria Alejandra Aguilar Tomasini*)

Journal Papers and Book chapters

1. Stein T. Holden (2022). Fifty Years of Research on Land Tenure Policies and Land Markets: What Are the Major Lessons? Chapter 9 in Jonna P. Estudillo, Yoko Kijima, Tetsushi Sonobe(Ed) [Agricultural Development in Asia and Africa: Essays in Honor of Keijiro Otsuka](#). SpringerLink

Abstract


This study makes a broad review of important contributions by economists to the understanding of land and labor contracts in agriculture and the analyses of major land tenure reforms in the twentieth century. Possible disincentive effects associated with share tenancy received much attention in the early theoretical literature and have later been scrutinized empirically with the availability of better data and better methods. With the development of better impact assessment methods and the experimental revolution in economics, land tenure reforms have increasingly also been assessed based on stronger data and better methods. However, using random treatments in such institutional



reforms may neither be feasible nor recommendable in many cases. Still, experimental approaches may be used to investigate short-term impacts and help to reveal otherwise unobservable variables, such as risk preferences and trustworthiness, that affect land and labor contracts. With a good understanding of important contextual characteristics and new and better data, land tenure and land policies remain a vibrant and important area of research for applied economists. Rural transformation and adaptation to climate change put new pressures on rural factor markets and land tenure institutions in economies where shocks and pervasive market imperfections remain important challenges.

2. Sarah Ephrida Tione, Dorothy Nampanzira, Gloria Nalule, Olivier Kashongwe and Samson Pilanazo Katengeza (2022). [Anthropogenic Land Use Change and Adoption of Climate Smart Agriculture in Sub-Saharan Africa](#). Sustainability, doi: 10.3390/su142214729

Abstract




Compelling evidence in Sub-Saharan Africa (SSA) shows that Climate-Smart Agriculture (CSA) has a positive impact on agricultural productivity. However, the uptake of CSA remains low, which is related to anthropogenic, or human-related, decisions about CSA and agricultural land use. This paper assesses households' decisions to allocate agricultural land to CSA technologies across space and over time. We use the state-contingent theory, mixed methods, and mixed data sources. While agricultural land is increasing, forest land is decreasing across countries in SSA. The results show that household decisions to use CSA and the extent of agricultural land allocation to CSA remain low with a negative trend over time in SSA. Owned land and accessing land through rental markets are positively associated with allocating land to CSA technologies, particularly where land pressure is high. Regarding adaptation, experiencing rainfall shocks is significantly associated with anthropogenic land allocation to CSA technologies. The country policy assessment further supports the need to scale up CSA practices for adaptation, food security, and mitigation. Therefore, scaling up CSA in SSA will require that agriculture-related policies promote land tenure security and land markets while promoting climate-smart farming for food security, adaptation, and mitigation.

3. Mari O. Mamre and Dag Einar Sommervoll (2022). [Coming of Age: Renovation Premiums in Housing Markets](#). The Journal of Real Estate Finance and Economics, doi:10.1007/s11146-022-09917-w

Abstract

We rely on novel textual analysis of real estate listings and identify renovated dwellings in a dataset of Norwegian transactions to estimate the renovation premium in an urban housing market. The renovation premium is estimated in a hedonic framework by classical regression approaches and a random forest algorithm. The strength of the latter is that it allows for a more complex interplay between the renovation premium and explanatory variables. We



estimate a significant positive renovation premium of 5–7 percent for renovated dwellings and a negative premium of 9–10 percent for unmaintained/neglected dwellings. These averages mask significant variations in these premiums over time, particularly, a counter-cyclical effect. Omitting renovation information also has implications for estimated short-term house price growth. Unmaintained dwellings tend to transact more in the fourth quarter, indicating that parts of the seasonal price variation reported in the literature are due to compositional variation with respect to renovation. This composition effect bias price movement estimates downward, if uncontrolled for, as unmaintained dwellings transact at significantly lower prices.

4. Anders Hjort, Johan Pensar, Ida Scheel & Dag Einar Sommervoll (2020). [House price prediction with gradient boosted trees under different loss functions](#). *Journal of Property Research*, doi: 10.1080/09599916.2022.2070525

Abstract



Many banks and credit institutions are required to assess the value of dwellings in their mortgage portfolio. This valuation often relies on an Automated Valuation Model (AVM). Moreover, these institutions often report the models accuracy by two numbers: The fraction of predictions within $\pm 20\% \pm 20\%$ and $\pm 10\% \pm 10\%$ range from the true values. Until recently, AVMs tended to be hedonic regression models, but lately machine learning approaches like random forest and gradient boosted trees have been increasingly applied. Both the traditional approaches and the machine learning approaches rely on minimising mean squared prediction error, and not the number of predictions in the $\pm 20\% \pm 20\%$ and $\pm 10\% \pm 10\%$ range. We investigate whether introducing a loss function closer to the AVMs actual loss measure improves performance in machine learning approaches, specifically for a gradient boosted tree approach. This loss function yields an improvement from 89.4%89.4% to 90.0%90.0% of predictions within $\pm 20\% \pm 20\%$ of the true value on a data set

of $N=126719$ transactions from the Norwegian housing market between 2013 and 2015, with the biggest improvements in performance coming from the lower price segments. We also find that a weighted average of models with different loss functions improves performance further, yielding 90.4%90.4% of the observations within $\pm 20\% \pm 20\%$ of the true value.

5. Julia Braun, Hans-Peter Burghof, Julius Langer and Dag Einar Sommervoll (2022). [The Volatility of Housing Prices: Do Different Types of Financial Intermediaries Affect Housing Market Cycles Differently?](#) The Journal of Real Estate Finance and Economics, doi:10.1007/s11146-022-09907-y

Abstract

Housing markets display several correlations to multiple economic sectors of an economy. Their enormous impact on economies' health, wealth, and stability is uncontroversial. Interestingly, the forms of financing residential property vary widely between the different countries in terms of both,

the available product types and the institutions offering them. This research examines the implications of different financial intermediaries on housing market cycles with special emphasis on two institutional types, conventional banks and building and loan associations. Introducing a heterogeneous agent-based model, the interactions of buyers, sellers, and the two types of credit institutions are assessed. Heterogeneous economic principles and expectations of agents create endogenous market conditions which are strongly influenced by the lending practices of financial intermediaries.

Focusing primarily on collateral values to decide about lending, conventional banks may contribute to volatile housing markets which are prone to recessions. Building and loan associations, on the other hand, rely to a greater extent on endogenously created borrower information. Thus, they are able to cushion the volatility of house prices caused by procyclical mortgage lending of conventional banks and increase the stability of the housing market. Simulations show that the most stable market conditions are attained if both types of financial intermediaries serve the mortgage lending market jointly. Furthermore, transaction and homeownership rates are the highest in this market setting. These findings advocate in favor of diversified financial markets.



6. Esther Kemigisha, Arild Angelsen, Fred Babweteera, and Johnny Mugisha (2022). [Survival-versus opportunity-driven environmental reliance: Evidence from Uganda](#). *Journal of Forest Policy and Economics*, Vol 135:102639, doi: 10.1016/j.forpol.2021.102639

Abstract



We investigate whether environmental reliance can be better understood if household categories are identified based on their level of reliance rather than the prevalent approaches based on what they earn (total household income) or own (assets). We conduct quantile regressions of environmental income and reliance (measured as the share of total household income from the environment) on different household and contextual variables, using a sample of 268 households from Hoima and Kibale districts in Uganda. We hypothesize that environmental reliance for the most reliant is a ‘survival-led’ coping mechanism resulting from low asset levels, while environmental reliance for the least reliant is ‘opportunity-led’, induced by the ease of access to environmental products and markets. The analysis shows that the most environmentally reliant households are driven by necessity, particularly low levels of agricultural farmland and other household assets, supporting the first hypothesis. We do not find strong evidence, however, for the second hypothesis, namely that

market proximity induces the least reliant (and generally more asset-rich) households to increase their environmental income. We suggest that environmental policy interventions should be differentiated. In areas where environmental income is a major source of livelihood, law enforcement programs that regulate environmental extraction need to be complemented with alternative income sources. Small farm size is a major push factor into environmental reliance, hence enhancing land productivity and farm income is a potential policy towards the most reliant households. Farm size had no significant effect on environmental reliance among the least reliant households, while higher off-farm income is associated with less environmental reliance.

7. Stibniati S Atmadja, Amy E Duchelle, Veronique De Sy, Vivi Selviana, Mella Komalasari, Erin O Sills and Arild Angelsen (2022). [How do REDD+ projects contribute to the goals of the Paris Agreement?](#) Environmental Research Letters, Vol 17 (4):044038, doi: 10.1088/1748-9326/ac5669

Abstract

Hundreds of projects to reduce emissions from deforestation and forest degradation and enhance carbon stocks (REDD+) are implemented globally, many by non-governmental organizations (NGOs) or for-profit companies. Yet, at the global level, the Paris



Agreement focuses on jurisdictional (national and subnational) REDD+. We ask: (1) How much can REDD+ projects contribute to achieving national and international climate objectives? (2) What are the issues in integrating REDD+ projects into national carbon accounting? Our snapshot of 377 REDD+ projects covering 53 million ha in 56 countries is based on data from the International Database on REDD+ Projects (ID-RECCO) supplemented with new data on projects' accounting methods. The number of new REDD+ projects declined steadily from 45 new projects in 2011 to five in 2019. We examined 161 certified projects that started between 2007 and 2017; 96 of these could sell carbon credits in voluntary carbon markets by 2020 and spent on average 4.7 (\pm 2.4) years between project start and sales in voluntary carbon markets. Globally, REDD+ projects claim to reduce an average of 3.67 tCO₂e/ha annually. This figure - combined with projects limited coverage - implies that projects need to be upscaled more than 40x to fulfil the potential contribution of tropical and subtropical forests towards limiting global warming to well below 20C. Compared to the national carbon accounting methods, most projects in Colombia, Indonesia and Peru (63 of 86) use at least one different carbon accounting parameter. Carbon accounting inconsistencies across levels need to be addressed. Overall, the argument for REDD+ projects lies in the emissions reductions they can achieve, diversifying participation in REDD+ and providing non-carbon benefits to local communities, potentially leading to broader support for climate action.

8. Julia Naime, Arild Angelsen, Adriana Molina, Cauê Carrilho, Vivi Selviana, Gabriela Demarchi, Amy E. Duchelle and Christopher Martius (2022). [Inequality and enforcement in group-based PES: Evidence from a Framed Field Experiment](#). *Global Environmental Change*, Vol 74, doi: 10.1016/j.gloenvcha.2022.102520

Abstract



Collective Payments for Ecosystem Services (PES), where forest users receive compensation conditional on group rather than individual performance, are an increasingly used policy instrument to reduce tropical deforestation. However, implementing effective, (cost) efficient and equitable (3E) collective PES is challenging because individuals have an incentive to free ride on others' conservation actions. Few comparative studies exist on how different enforcement strategies can improve collective PES performance. We conducted a framed field experiment in Brazil, Indonesia and Peru to evaluate how three different strategies to contain the local free-rider problem perform in terms of the 3Es: (i) Public monitoring of individual deforestation, (ii) internal, peer-to-peer sanctions (Community enforcement) and (iii) external sanctions (Government enforcement). We also examined how inequality in wealth, framed as differences in deforestation capacity, affects policy performance. We find that introducing individual level sanctions can improve the effectiveness,

efficiency and equity of collective PES, but there is no silver bullet that consistently improves all 3Es across country sites. Public monitoring reduced deforestation and improved the equity of the program in sites with stronger history of collective action. External sanctions provided the strongest and most robust improvement in the 3Es. While internal, peer enforcement can significantly reduce free riding, it does not improve the program's efficiency, and thus participants' earnings. The sanctioning mechanisms failed to systematically improve the equitable distribution of benefits due to the ineffectiveness of punishments to target the largest free-riders. Inequality in wealth increased group deforestation and reduced the efficiency of Community enforcement in Indonesia but had no effect in the other two country sites. Factors explaining differences across country sites include the history of collective action and land tenure systems.

9. David LA Gaveau, Bruno Locatelli, Mohammad A Salim, Timer Manurung, Adrià Descals, Arild Angelsen, Erik Meijaard, Douglas Sheil (2022). [Slowing deforestation in Indonesia follows declining oil palm expansion and lower oil prices](#). PLOS ONE, Vol 17 (3), doi: 10.1371/journal.pone.0266178

Abstract

Collective Payments for Ecosystem Services (PES), where forest users receive compensation conditional on group rather than individual performance, are an increasingly used policy instrument to reduce tropical deforestation. However, implementing effective, (cost) efficient and equitable (3E)

collective PES is challenging because individuals have an incentive to free ride on others' conservation actions. Few comparative studies exist on how different enforcement strategies can improve collective PES performance. We conducted a framed field experiment in Brazil, Indonesia and Peru to evaluate how three different strategies to contain the local free-rider problem perform in terms of the 3Es: (i) Public monitoring of individual deforestation, (ii) internal, peer-to-peer sanctions (Community enforcement) and (iii) external sanctions (Government enforcement).

We also examined how inequality in wealth, framed as differences in deforestation capacity, affects policy performance. We find that introducing individual level sanctions can improve the effectiveness, efficiency and equity of collective PES, but there is no silver bullet that consistently improves all 3Es across country sites. Public monitoring reduced deforestation and improved the equity of the program in sites with stronger history of collective action. External sanctions provided the strongest and most robust improvement in the 3Es. While internal, peer enforcement can significantly reduce free riding, it does not improve the program's efficiency, and thus participants' earnings. The sanctioning mechanisms failed to systematically improve the equitable distribution of benefits due to the ineffectiveness of punishments to target the largest free-riders. Inequality in wealth increased group deforestation and reduced the efficiency of Community enforcement in Indonesia but had no effect in the other two country sites. Factors explaining differences across country sites include the history of collective action and land tenure systems.



10. Roy Brouwer, Rute Pinto, Anders Dugstad and Ståle Navrud (2022). [The economic value of the Brazilian Amazon rainforest ecosystem services: A meta-analysis of the Brazilian literature](#). PLOS ONE, doi: 10.1371/journal.pone.0268425

Abstract



The main objective of this study is to assess the economic value of the Brazilian Amazon's ecosystem services accruing to Brazilians based on a meta-analysis of the Brazilian valuation literature. Insight in these local values provides an important benchmark to demonstrate the importance of preserving the Brazilian Amazon forest. The review covers almost 30 years of Brazilian valuation research on the

Amazon, published predominantly in Portuguese, highlighting a high degree of study and data heterogeneity. The estimated mean value of the provision of habitat for species, carbon sequestration, water regulation, recreation and ecotourism to local populations is about 410 USD/ha/year. The standard deviation is however high, reflecting a wide dispersion in the distribution of values. Between 50 and 70 percent of the variation in these values can be explained with the help of the estimated meta-regression models, resulting in considerable prediction errors when applying a within-sample resampling procedure. These findings demonstrate the need for a more robust, common ecosystem services accounting and valuation framework before these values can be scaled up and aggregated across the entire Brazilian Amazon.

11. Stein T. Holden and Mesfin Tilahun (2022). [Are risk preferences explaining gender differences in investment behavior?](#) *Journal of Behavioral and Experimental Economics*, doi: 10.1016/j.socec.2022.101949

Abstract

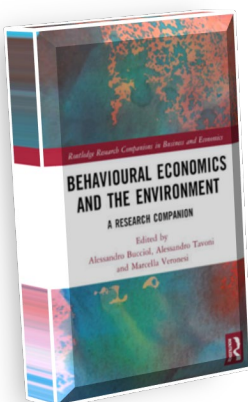


We analyze individual investment behavior among 822 young men and women that are members of 111 formal business groups in northern Ethiopia. We collected baseline data and investment data one year later combined with incentivized field experiments to obtain dis-aggregated risk preference data. We find that businesswomen on average invest significantly less at individual level than businessmen but Cohen's *d* values for the gender difference are moderate in size. Women are found to have higher Constant Relative Risk Aversion (CRRA-*r*) coefficients (more concave utility function), to be more loss averse, but also to be more optimistic in their expectations (lower Prelec beta) than men. Women were also poorer in non-land assets, came from more land-poor parents, and had lower incomes. The gender differences in risk attitudes and baseline endowments could explain some of but not all of the gender differences in investment behavior.

Stein T. Holden and Mesfin Tilahun (2023). How are social preferences of youth related to their motivation to invest in environmental conservation (local public goods)? [Chapter 4 in Behavioural Economics and the Environment](#). A Research Companion, edited by Alessandro Bucciol, Alessandro Tavoni, and Marcella Veronesi.

Book Introduction

Abstract



We have used simple incentivized social preference experiments for a sample of 2427 resource-poor rural youth that have formed natural-resource based youth business groups in their home communities. The experiments were combined with questions investigating their attitudes towards environmental conservation and willingness to contribute to conservation of local natural resources related to a compulsory labor contribution program. The paper investigates whether and how the revealed social preferences are associated with the attitudes towards environmental conservation and explores the spatial heterogeneity of conservation attitudes. It tests whether youth with altruistic and egalitarian social preferences are associated with stronger motivations for contributing to the

compulsory conservation program than youth with selfish and spiteful preferences. Our study finds evidence in support of this hypothesis. We also find evidence of substantial spatial variation in the attitudes towards the environmental conservation program and much of this heterogeneity seems to be determined at the community (tabia) level which is the lowest administrative level and the level at which the compulsory conservation program is organized. In general, we find strong support for the compulsory conservation work program among the youth. 97% of the youth agree or strongly agree that the program is very important to protect the natural resource base and secure the future livelihoods in their community. On average the subjects were willing to contribute 19.4 days/year free labor to the program, which was close to the current requirement of 20 days/year.

12. Clifton Makate, Arild Angelsen, Stein Terje Holden, and Ola Tveitereid Westengen (2022). [Crops in crises: Shocks shape smallholders' diversification in rural Ethiopia](#). *World Development*, doi: 10.1016/j.worlddev.2022.106054

Abstract



Crop diversity plays a central role in smallholder farmers' ability to cope with and adapt to shocks. Shifting crop varieties and diversifying the crop portfolio are common risk reduction strategies. This paper addresses the influence of covariate climate shocks and idiosyncratic socioeconomic shocks on crop variety use and crop species diversification by smallholder farmers using nationwide balanced panel data (2011/12, 2013/14, & 2015/16) from rural households in Ethiopia combined with village-level historical monthly rainfall and temperature data. We apply correlated random effects models, which control for time-invariant household unobservables. Past exposure to drought shocks increased the use of improved seed varieties in general and for wheat, while long-term average rainfall and lagged flood shocks enhance crop species diversity. Lagged temperature shocks increase improved seed use and crop species diversity. However, recurrent drought exposure and exposure to relatively more severe drought shocks significantly reduced overall agricultural activity.

Idiosyncratic shocks, to a much lesser degree, influenced seed use and crop diversification decisions compared to covariate drought shocks. Heterogeneity analysis revealed that drought shock exposure on farmers with less than average farm sizes and other assets - compared to those better-off - increased their relative reliance on local seed use, reduced crop diversification, and reduced improved seed use. The results are robust to various

sensitivity checks. Our findings are relevant for policy responses aiming to strengthen smallholders' ability to cope with and adapt to shocks: farmers' seed-based risk reduction strategies rely on access to seeds from both formal and informal seed systems, but policies addressing economic inequality are needed to enhance access to improved seeds and crop diversity for resource-poor socioeconomic groups.

13. Stein T. Holden, Dag Einar Sommervoll and Mesfin Tilahun (2022). [Mental Zooming as Variable Asset Integration in Inter-Temporal Choice](#). International Journal of Applied Behavioral Economics (IJABE), doi: 10.4018/IJABE.305241

Abstract



Our time preferences deviate systematically from that of Homo economicus. They seem to be driven by a form of mental zooming, where higher and more distant amounts induce a more holistic perspective in contrast to smaller and near future amounts. We model zooming as variable asset integration and ask whether this can explain the observed variation in discount rates in experiments. It can. Equally important, the zooming for both time and magnitude is similar across two countries (Ethiopia and Malawi) and within a country (Ethiopia).

14. Yidneckachew Ayele Zikargie & Logan Cochrane (2022). [Modernist Land Development-Induced Villagisation: Deconstructing Socio-Economic Rights of Pastoralists in South Omo, Ethiopia](#), Forum for Development Studies, 49:3, 511-534, DOI: 10.1080/08039410.2022.2085168

Abstract

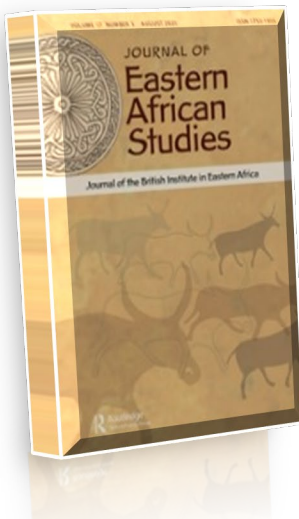
Based on an ethnographic case study of Bodi and Mursi pastoralist responses to sugar industries in South Omo, Ethiopia, this study aimed to comprehend the approach of a modernist land development-induced villagisation programme and its effect on the socio-economic rights of pastoralists. The article probes how and why land development activities and the related villagisation programme in the pastoral lowlands created



structural challenges and marginalised people’s socio-economic rights. The findings establish grounded insights into the modernist nature of land development-induced villagisation and the village centred approach of the government in the reconstruction of socio-economic rights of the pastoralists. Integral to the state’s approach are ‘state-centred’ narratives, guiding principles, actor participation, and outcomes of the villagisation programme. This modernist and state-dominated programme is shown conflicting goals; flawed assumptions; poor design; disregard for the complex social and environmental factors of the South Omo lowlands; and disruptive social mobilisation and implementation methods. It obstructs effective consideration of the agency, livelihood, traditions and knowledge of the pastoralists, thus leading to outcomes that deconstruct the socio-economic rights of the pastoralists.

15. Yidneckachew Ayele Zikargie, Poul Wisborg & Logan Cochrane (2022). [State-led modernization of the Ethiopian sugar industry: questions of power and agency in lowland transformation](#), *Journal of Eastern African Studies*, 16:3, 434-454, DOI: 10.1080/17531055.2023.2166449

Abstract



This article critically analyses the history of the Ethiopian sugar industry, with emphasis on drivers, decision-making and processes of incorporation and exclusion aiming to transform lowlands. We argue that the government has used a state-led modernization and expansion of the sugar industry to consolidate the power of central governments. Through the creation of sugar-based agribusinesses, the changing regimes have sought to extend their control over natural resources, increase the movement of labour, and stimulate economic growth. This has led to deepened state structures and considerable transformation of power relations, causing marginalization of the affected communities. In Ethiopia’s post 2018 political and economic transition, this modernist and expansionist programme found itself in a set of deep economic and financial crises, leading to government

initiatives to privatize the sugar industry. In response to the privatization initiatives, local elites articulate and contest the historical process of marginalization and compete in

demanding redress for the adverse incorporation of the communities. They do so to expand the community space for agency and enforce their interests in gaining from, and perhaps dominating a privatization process through takeover strategies. The past modernist development approach that caused marginalization is likely to affect a new stage of lowland transformation.

16. Caroline Aboda, Pål O. Vedeld, Paul Musali, Goretti Nabanoga & Frank Mugagga (2022). [Vulnerability of households to resettlement and compensation measures for an oil refinery project in the Albertine region of Uganda](#), *GeoJournal* 88: 3121–3141. DOI: 10.1007/s10708-022-10799-x.

Abstract



There are many risks for local people related to resettlement schemes and compensation measures caused by different development projects. In Buseruka sub-county, Hoima district in Western Uganda, land was expropriated for an oil refinery project. A vulnerability assessment was conducted for this scheme. Households could choose between cash compensation as a resettlement measure, or a relocation to an established site with a house and some agricultural land and other inputs. A household survey was carried out involving 187 household heads and various key person interviews. An analysis of overall vulnerability among the resettled households was based on indices constructed from carefully selected indicators for exposure, sensitivity and the adaptive capacity. A principal Component Analysis was used in assigning weights to indicators of the vulnerability of resettled households. Affected households could choose between cash compensation or land /house. In addition we looked at effects of the measures on the host population receiving the relocated households. Cash compensated households were most vulnerable in relocation areas compared to both host community households and to formally resettled households with a house or land respectively. Cash compensation was found to be surrounded by much controversy which challenges the commonly held notion that cash can easily facilitate or restore the livelihoods of displaced people. There is thus a need to critically analyse how or to what extent different resettlement mechanisms restore livelihoods of project affected people and prevent household vulnerability. The findings in this study indicate that cash compensation may not reduce socio-economic vulnerability of affected persons in areas where land is the most important livelihood asset.

17. Trygstad, Veronica (2022): [The Backlog of Cadastre Records of Older Cases Conducted by the Land Consolidation Court in Norway](#). *Nordic Journal of Surveying and Real Estate Research*, Vol. 6, 7-29. NJSR Special Series Vol. 6 Malmö Real Estate Research Conference 2021–2022, doi.org.10.30672/njsr.108984

Abstract



This article aims to elucidate the reasons for the lack of cadastre registration of older cases conducted by the land consolidation court in Norway. The cadastre's increasing role in society requires the cadastre to be updated, among other things, after a land consolidation process. In order to assess the reason(s) for the backlog, a questionnaire survey was conducted and statistically analyzed. In addition, free text answers from the survey were analyzed and synthesized by using content analysis. The current study reveals that many Norwegian municipalities do not have an overview of how many older cases conducted by the land consolidation court there are within the municipality. Furthermore, the reason for the lack of cadastre registration of older cases conducted by the land consolidation court seems to be that, the cases were never handed over to the municipalities for their cadastre records. Moreover, it is a time-consuming, as well as highly complex, process to register these cases in the cadastre. The article's contribution to the field is two-fold. Firstly, the study provides insight into Norwegian conditions regarding land consolidation and cadastre records. Secondly, the article contributes to an ongoing debate in Norway about improving the quality of the cadastre. The study has limitations, as the survey sample was not a result of randomized sampling. Nevertheless, the data obtained give a picture of the current backlog in the registration of older cases carried out by the land consolidation court and how it effects the society and the public in general.



18. Boge, Knut (2022): [Putin-regimets angrepskrig mot Ukraina påvirker også eiendomsfaget og planfaget](#). *Kart og Plan*, Vol. 115(1), 3-12.

19. Holsen, Terje (2022): [Arealplanfaglige prinsipper og tradisjoner i planlegging av tettbygde fritidsbyggområder](#). *Kart og Plan* 2022; Vol. 115(1) 29-64.

Abstract



This article focuses on the relationship between national Norwegian principles for urban development and statutory land-use planning for new holiday homes in mountain areas. More specifically, the article focuses on whether – and if so, how – zoning principles and traditions from the planning and development of monofunctional suburban areas of detached houses in the period after the Second World War and up to the 1980s affect today’s planning of densely populated recreational areas. It has been argued that newer holiday home areas in the mountain areas can be understood as a specialized, car-based and functionally divided type of built environment (Haslum, 2011, p. 8) and that the planning challenges are largely the same as for the development of suburban residential areas (Skjeggedal et al., 2009, p. 45).

The purpose of the article is to investigate whether features of the land-use planning ideas that characterized the planning of suburban residential areas is valid for the current planning of holiday homes. This is investigated through a morphological land-use and land-tenure analysis of detailed zoning plans. The issue is important in that Norwegian national expectations regarding regional and municipal planning from the 1990s onwards have prescribed densification and transformation of already built-up areas as a land-use strategy. Despite these expectations, more than 150,000 new holiday homes have been established in Norway during this period, mainly in previously untouched forest and mountain areas with often great significance for biological diversity and the sustainability of nature.

The article concludes that morphologically the holiday-home fields share several similarities with suburban residential areas. This applies in particular to the morphology of land-use plans, when comparing the functional composition of the plans on which the development is based. However, there are clear signs that real-estate development in the holiday home market is gradually adapting and using instruments of land-use management from urban densification and transformation. Furthermore, they are also similar when comparing key morphological design elements. This applies in particular to road construction and building structure. The more explicit architectural design is probably less similar. In the same way that residential areas increased in density from the 1960s to the 1980s, there are also tendencies towards increased density in holiday-home areas.

The development of land tenure in densely populated holiday development areas is largely a result of property development in the holiday-home market being governed by

the same principles and the same market mechanisms as those found in urban property development – densification and transformation. Understood as land tenure, today's holiday-home areas differ to a greater extent from the suburban residential areas than when comparing the land-use plan morphology.



20. Holth, Fredrik; Larsen, Ingrid Wang (2022): [Fra rettspraksis. Vindkraftutbygging på Fosenhalvøya og samiske rettigheter etter SP artikkel 27.](#) *Kart og Plan*, Vol. 115.(1) 88-94. doi.org/10.18261/kp.115.1.5

21. Sky, Per Kåre (2022): Utskiftningsloven 200 år. *Kart og Plan*, Vol. 115(3) 194-194. doi.org/10.18261/kp.115.3

22. Bergsholm, Einar (2022): Eiendomsskattens historie i Norge. *Kart og Plan*, Vol. 115(3), 303-319. <https://doi.org/10.18261/kp.115.3>.

23. Bergsholm, Einar (2022): Eiendomsskattens historie i Norge. *Kart og Plan*, Vol. 115(3), 303-319. <https://doi.org/10.18261/kp.115.3>.

24. Kvestad, Lars August Hafting; Sky, Per Kåre; Aadland, Børge (2022): Om utskiftningene og kartene som ble utarbeidet etter utskiftningsloven 1821. *Kart og Plan*, Vol. 115(3) 199-222. <https://doi.org/10.18261/kp.115.3.3>

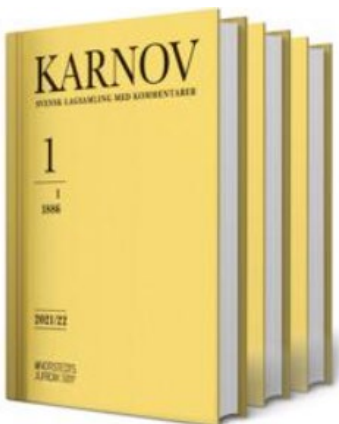
Abstract



The Land Consolidation Act (1821) was the first nationwide special statutory regulation of land consolidation. One of the purposes of the Act was to facilitate as many out-of-court settlements as possible, without involving the Local Settlement Commission or the Court (which acted as the first and second court of competent jurisdiction, respectively). As most of the land consolidation cases were carried out as out-of-court settlements and often without registration, there is scarce knowledge of how these were executed. In retrospect, criticism of the Act among other things has been that mapping was not mandatory, but some land consolidation maps have been made. We will present where to find such maps, who the mapmakers were,

what kind of information can be found in the maps and how the maps are being used today.

We have found a limited number of maps at the Land Consolidation Courts Archive, The Norwegian Mapping Authority, The Regional State Archives of Norway, Lovdata Pro, The Library of Gunnerus, DigitaltMuseum, The Collection of Væringsaasen, with private persons, The Map Centre at the National Library of Norway, The Norwegian Church Endowment map collection and different publications (especially books on local history and other local history journals). The Land Consolidation Act (1821) did not have any standardization for the maps made for the land consolidation cases, and that is why the maps vary in content. What one finds in most of the maps is property boundaries, the properties and the outer boundaries for the land consolidation case. In this article there are also given examples of maps that show details such as boundaries markers (often given by numbers or letters), length measurements, right-of-use boundaries, buildings, roads, stone fences, watercourses, cultivated and uncultivated land, map scale, title field (farm name, year and map-makers name), map explanations (owners/users, local names and plots/parcels) and compass directions. The article concludes with some reflections on the importance the maps can have today.



25. Sky, Per Kåre (2022): Jordskifteloven. Kommentartutgave kapittel 1-4. *Karnov lovkommentarer*, pp. 4-69.

26. Bergsholm, Einar (2022): Lovkommentarer til hevdslova - Karnov. *Karnov lovkommentarer 2022* (20 pages). URL: <https://lovdata.no/pro/#document/NL/lov/1966-12-09-1/?commentSource=karnov&commentID=1966-12-09-1.star&commentVersion=1>



27. Bergsholm, Einar (2022): Lovkommentarer til sameieloven - Karnov. *Karnov lovkommentarer 2022* (28 pages). URL: <https://lovdata.no/pro/#document/NL/lov/1965-06-18-6/?commentSource=karnov&commentID=1965-06-18-6.star&commentVersion=1>

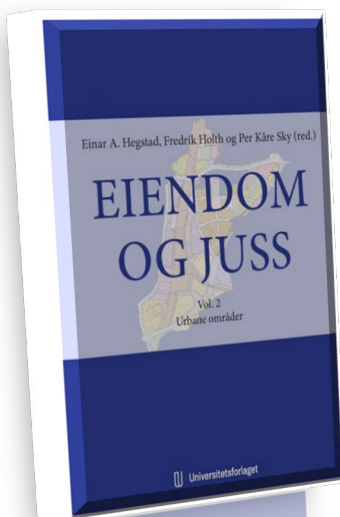


28. Hegstad, Einar A.; Holth, Fredrik; Sky, Per Kåre (eds.) (2022): *Eiendom og juss vol. 2*. Universitetsforlaget (ISBN 9788215054339), 284 p.

28. Hegstad, Einar A.; Holth, Fredrik; Larsen, Ingrid Wang; Sky, Per Kåre (2022): Jordskifte i urbane områder, pp. 13-22 in *Eiendom og juss vol. 2*. Oslo: Universitetsforlaget.

29. Nord, Erik; Sky, Per Kåre (2022): Fysisk omskaping av eiendom eller bruksrett i urbane områder, pp. 23-45, in *Eiendom og juss vol. 2*. Oslo: Universitetsforlaget.

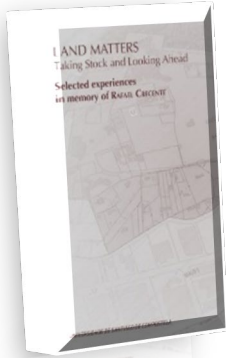
30. Holsen, Terje; Sky, Per Kåre (2022): Organisatorisk omskaping av eiendom og bruksrett i urbane områder, pp. 46-71, in *Eiendom og juss vol. 2*. Oslo: Universitetsforlaget.



31. Holsen, Terje (2022): Jordskifte i urbane områder sett fra planleggers ståsted, pp. 182-211, in *Eiendom og juss vol. 2*. Oslo: Universitetsforlaget.

32. Holsen, Terje (2022): Jordskifte i urbane områder sett fra eiendomsutviklers ståsted, pp. 138-173, in *Eiendom og juss vol. 2*. Oslo: Universitetsforlaget.

33. Holth, Fredrik; Larsen, Ingrid Wang (2022): Omskaping og avskaping av servitutter etter servituttloven, pp. 232-262, in *Eiendom og juss vol. 2*. Oslo: Universitetsforlaget.



34. Sky, Per Kåre; Elvestad, Helen Elisabeth (2022): Land consolidation - an emotional process for the parties involved, pp. 119-140, in *Land matters. Taking stock and looking ahead. Selected experiences in memory of Rafael Crecente*. Santiago de Compostela: Universidad de Santiago de Compostela, ISBN 9788419155290.



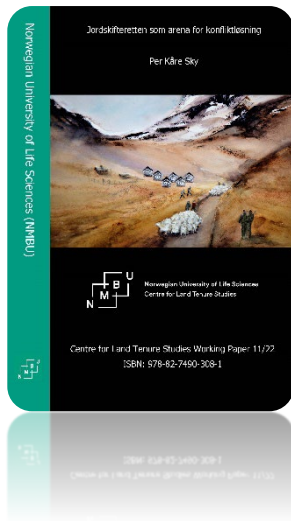
35. Taubøll, Steinar (2022): *Vann, juss og samfunn – rettigheter og regulering i utvikling*. Oslo: Cappelen Damm Akademisk (ISBN 9788202738686) (519 p). Open Access: <https://utdanning.cappelendamm.no/vann-juss-og-samfunn--rettigheter-og-regulering-i-utvikling-9788202738686>

36. Taubøll, Steinar; Paus, Kim Aleksander Haukeland (2022): Overvann som naturfare: faktagrunnlag og rettslig håndtering, pp. 95-117, in *Vann, juss og samfunn – rettigheter og regulering i utvikling*. Oslo: Cappelen Damm Akademisk.

CLTS Working Papers

1. Per Kåre Sky (2022). [Jordskifteretten som arena for konfliktløsning. CLTS Working Paper No. 11/2022](#). Center for Land Tenure Studies, Norwegian University of Life Sciences, Aas, Norway.

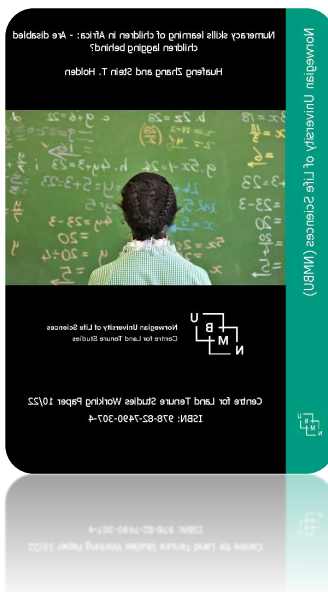
Abstract of the Paper



Land consolidation courts deal with cases where the relationship between holders of grazing rights needs be regulated, but also where the rights holders are competing with other potential land uses, such as building holiday cabins, forestry, hunting, etc. In this essay we follow a couple that consider to apply for land consolidation due to conflicts.

2. Huafeng Zhang and Stein T. Holden (2022). [Numeracy skills learning of children in Africa: - Are disabled children lagging behind? CLTS Working Paper No. 10/2022](#). Center for Land Tenure Studies, Norwegian University of Life Sciences, Aas, Norway.

Abstract of the Paper



Significant progress has been achieved in universal basic education in African countries since the late 1990s. This study provides empirical evidence on the within- and across-country variation in numeracy skills performance among children based on nationally representative data from eight African countries (DR Congo, The Gambia, Ghana, Lesotho, Sierra Leone, Togo, Tunisia, and Zimbabwe). We assess whether and to what extent children with disabilities lag in numeracy skills and how much it depends on their type of disabilities. More specifically, we explore whether disabled children benefit equally from better school system quality. The assessment is analysed as a natural experiment using the performance of non-disabled children as a benchmark and considering the different types of disabilities as random treatments. We first evaluate the variation in average numeracy skills in the eight African countries. They can roughly be divided into low- and

high-numeracy countries. We apply Instrumental Variable (IV) methods to control the endogeneity of completed school years when assessing subjects' school performance and heterogeneous disability effects. Children with vision and hearing disabilities are not especially challenged in numeracy skills performance. The low numeracy skills among physically and intellectually disabled children are mainly attributable to their limited school attendance. Children with multiple disabilities are constrained both by low school attendance and by poor numeracy skills return to schooling. The average differences in school performance across the high- versus low-numeracy skill country groups are larger than the within-group average differences for disabled versus non-disabled kids. This indicates that school enrolment and quality are crucial for children's learning of numeracy skills, and that disabled children benefit equally from better school quality across these African countries.

3. Stein T. Holden, Sarah Tione, Samson Katengeza and Mesfin Tilahun (2022). [The Predictive Power of Luck: Luck and Risk-Taking in a Repeated Risky Investment Game. CLTS Working Paper No. 9/2022.](#) Center for Land Tenure Studies, Norwegian University of Life Sciences, Aas, Norway.

Abstract of the Paper

Can luck predict risk-taking behavior in games of chance? Economists have not widely studied this issue although overconfidence, optimism-, and pessimism bias have received substantial attention in recent years. In this study, we investigate how good and bad luck outcomes in a simple repeated risky investment game affect risk-taking behavior in the following rounds of the same game where the outcome (luck) in the game is determined by the throwing of a die after each round. The outcome of the previous round's die-throw is known when the subjects decide how risky their next choice in the game will be. A sample of 718 university students is used as subjects in the game in a recursive within-subject design. The results demonstrate a strong impact of luck on risk-taking behavior that lasts not only to the next round but also into another two follow-up rounds, with cumulative effects. A time delay of 1-2 months between Round 1 and Round 2 did not wipe out the luck effect and it was only slightly weaker than the luck effect from Round 2 to Rounds 3 and 4 that followed immediately after Round 2. Many recent studies have shown that risk preferences respond to recent shocks. This study indicates that random shocks such as luck in previous games (states of nature) influence risk-taking behavior. Our study suggests that the causal mechanism goes through subjective beliefs in luck based on past experiences that influence expectations and thereby risk-taking behavior.

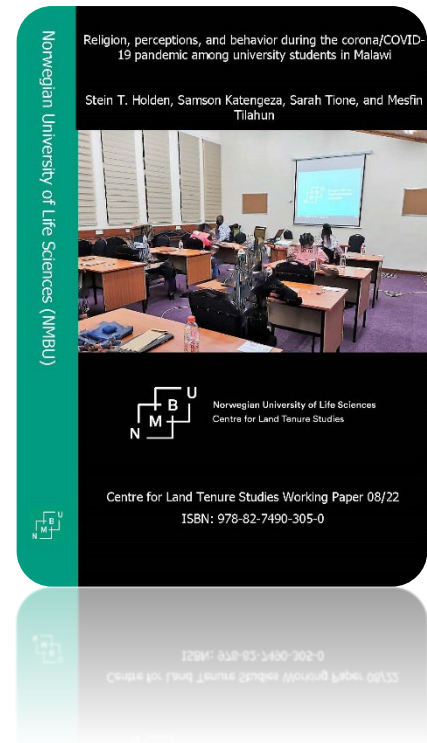


4. Stein T. Holden, Samson Katengeza, Sarah Tione and Mesfin Tilahun (2022). [Religion, perceptions, and behavior during the corona/COVID-19 pandemic among university students in Malawi. CLTS Working Paper No. 8/2022.](#) Center for Land Tenure Studies, Norwegian University of Life Sciences, Aas, Norway.

Abstract of the Paper

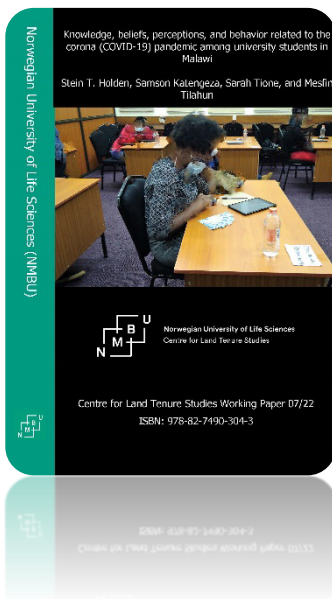
This study investigates the covid risk perceptions, information updating behavior related to the pandemic, use of protective measures, especially facemasks, and the demand for vaccines among university students in Malawi. In particular, the study focuses on how religion and belief in prayer as a protective device against covid-19 are affecting perceptions and behavior related to the pandemic. Our findings are from a stratified random sample of 764 students from 48 classes spread across different disciplines and study years for both undergraduate and postgraduate. One-tenth of the students believed that prayer was their most important measure to protect themselves against the pandemic. Students belonging to the Seventh Day Adventists (Baptist) and Pentecostal religions perceived the covid risk to be significantly lower than other students. Students that considered prayer to be the most important protective device also perceived the covid risk to be lower than others; and updated themselves significantly less frequently about the status of the pandemic than other students. Whereas students that perceived their personal health to be at risk updated themselves more frequently about the pandemic.

The information updating frequency related to the pandemic and covid risk perceptions were positively correlated with facemask use, including facemask use in church. Those who believed in prayer as a protective device were using facemasks less frequently. Students belonging to the Seventh Day Adventists and Pentecostals were less likely to use facemasks in church. These two student groups represent close to 30% of our sample; and these two groups are less likely to have tried to get vaccinated or having gotten vaccinated. These two groups are therefore at higher risk themselves in future corona waves and may also, due to their beliefs and behavior enhance the spread of the virus. Our findings may be useful for targeting efforts to promote more corona safe behavior.



5. Stein T. Holden, Samson Katengeza, Sarah Tione and Mesfin Tilahun (2022). [Knowledge, beliefs, perceptions, and behavior related to the corona \(COVID-19\) pandemic among university students in Malawi. CLTS Working Paper No. 7/2022.](#) Center for Land Tenure Studies, Norwegian University of Life Sciences, Aas, Norway.

Abstract of the Paper



This study is based on a survey of 764 students at the Lilongwe University of Agriculture and Natural Resources (LUANAR), Lilongwe, Malawi. It aims to provide evidence on the extent of exposure to the pandemic among university students, their knowledge and beliefs related to the corona virus and the ways they protect themselves against getting infected, the sources of information that they rely on, and other factors influencing their knowledge, beliefs, and behavior. The study was undertaken in the period of February-March 2022 during which the fourth wave of the pandemic in the country took place and in this period the omicron variant of the virus dominated. We investigate factors associated with the extent of knowledge about the corona virus and COVID risk perceptions, information updating behavior, preferences for alternative protective measures, especially vaccination and

use of facemasks. We also assessed beliefs about the effects of vaccination, trust in vaccines, and passive and active demand for vaccination. Finally, we investigate facemask use intensity and factors influencing the likelihood of infection and COVID-19 disease based on subjective self-reported experiences.

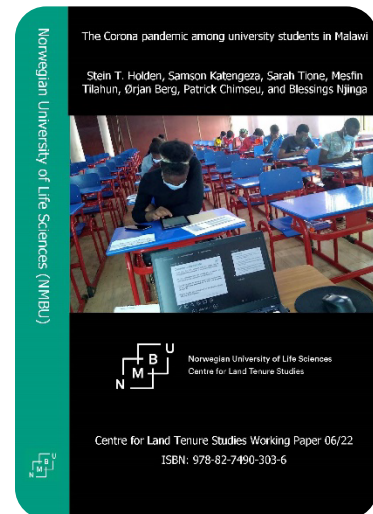
6. Stein T. Holden, Samson Katengeza, Sarah Tione, Mesfin Tilahun, Ørjan Berg, Patrick Chimseu, and Blessings Njinga (2022). [The Corona pandemic among university students in Malawi. CLTS Working Paper No. 6/2022.](#) Center for Land Tenure Studies, Norwegian University of Life Sciences, Aas, Norway.

Abstract of the Paper

This study provides the initial survey data from a sample of 764 students at the Lilongwe University of Agriculture and Natural Resources (LUANAR), Lilongwe, Malawi. It aims to provide evidence on the extent of exposure to the pandemic among university students, their knowledge and beliefs related to the corona virus and the ways to protect oneself against getting infected, the sources of information that the students rely on, and other factors influencing their knowledge, beliefs, and behavior. The study was undertaken in

the period of February-March 2022 during which the fourth wave of the pandemic in the country took place and in this period the omicron variant of the virus dominated.

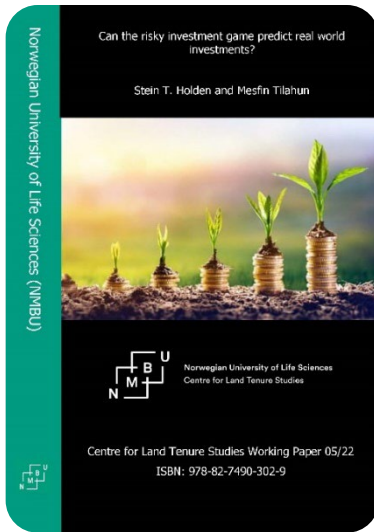
The result of the study shows that 17.5% of the students reported that they thought they had been infected by the corona virus. But only 23.9% of these had tested themselves for being infected and 27.2% of the students had taken a COVID-19 vaccine. Among those not vaccinated, 42.5% would like to get vaccinated, 21.9% are unsure and the remaining 35.6% would not like to get the vaccine. Astra Zeneca (47.6%) and Johnson & Johnson (53.3%) are the dominating vaccines used. Most of (95.2%) the students stated that they tried to avoid getting infected by the corona virus during the most recent wave of the pandemic. The use of facemasks was considered most important way to avoid getting infected, followed by distancing, handwashing and avoiding crowded places. Few gave priority to avoiding handshakes and avoiding visiting old people and relatives or reduced the number of contact persons. This could be related to the social setup in Malawi, which revolves around handshakes and visiting family members compared to the global north where handshakes are less common.



7. Stein T. Holden and Mesfin Tilahun (2022). [Can the risky investment game predict real world investments? CLTS Working Paper No. 5/2022](#). Center for Land Tenure Studies, Norwegian University of Life Sciences, Aas, Norway.

Abstract of the Paper

The incentivized risky investment game has become a popular tool in lab-in-the-field experiments for its simplicity and ease of comprehension compared to some of the more complex Multiple Choice List approaches that have been more commonly used in laboratory experiments. We use a field experiment to test whether the game can predict real world investments by the same subjects based on the assumption that the game can provide a reliable measure of risk tolerance and that risk tolerance is an important predictor of investment behavior. The results show that the game cannot predict investment behavior in our sample. There are two reasons for this. First, we find substantial measurement error and low correlation when the game is repeated one year

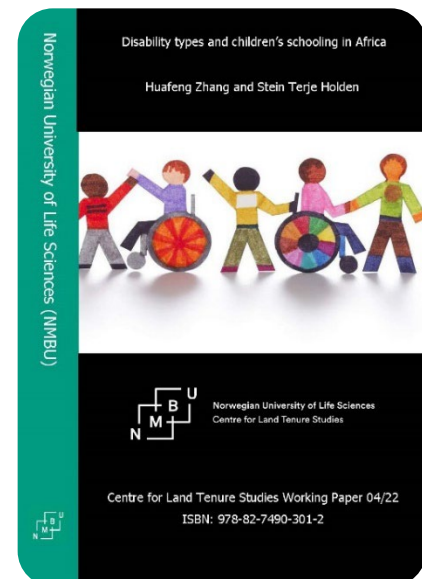


later for the same subjects. Measurement error is so large in our sample that the “obviously related instrumental variable” (ORIV) approach of Gillen, Snowberg and Yariv (2019) could not remedy the problem. Second, the game appears to suffer from low asset integration due to narrow bracketing, explaining its limited predictive power and the failure to detect attenuation bias due to measurement error. Subjects’ cognitive memory of the game played one year earlier is strongly positively related to investment intensity in the game and this result is much enhanced when correcting for the endogeneity of cognitive memory.

8. Huafeng Zhang and Stein Terje Holden (2022). [Disability types and children’s schooling in Africa. CLTS Working Paper No. 4/2022](#). Center for Land Tenure Studies, Norwegian University of Life Sciences, Aas, Norway.

Abstract of the Paper

The Sustainable Development Goals (SDGs) set up by the United Nations include an overarching principle of “leaving no one behind” and aim for, among other goals, equal access to education for children with disabilities. Our study contributes to the knowledge on the school enrolment of disabled children with different disability types, with a focus here on eight countries in Sub-Saharan Africa. Comparing the situation with children without disabilities as a benchmark, we assess early school enrolment for young children below ten years old, school enrolment for older children aged 10–17 years old, and the dropout rates of children from school. We perform our analysis as a natural experiment where different types of disabilities are considered as random treatments, which allows us to assume that the average deviation in certain school performance indicators from the average for non-disabled children is a result of the disability type,



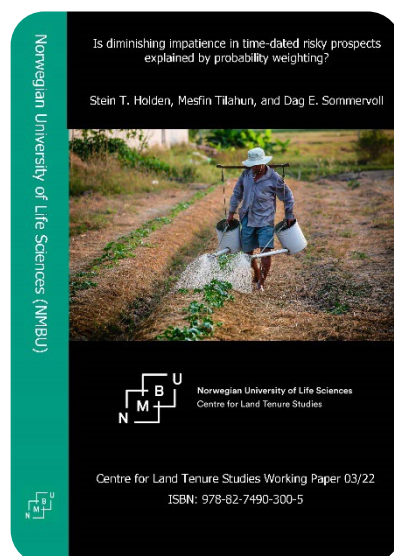
specifically vision, hearing, walking, intellectual capacity, and multi-disability.

Our study finds that, compared with non-disabled children, children with vision and hearing disabilities do not lag behind in school enrolment. In contrast, children with walking disability have a higher risk of starting school late. Children with intellectual disabilities are less likely to enrol in school, less likely to remain enrolled, and more likely to drop out than their counterfactual peers. Children with multiple disabilities tend to experience the most severe challenges in enrolling at school, both at a young age and later. However, once enrolled in school, children with multiple disabilities are not more likely to drop out earlier than other children.

Based on the first and probably the only large-scale application to date of the standard Washington Group Child function module as a disability measurement tool, our study is the first comprehensive multi-country study of disabled children's schooling in Sub-Saharan Africa based on recent nationally representative data.

9. Stein T. Holden, Mesfin Tilahun, and Dag E. Sommervoll (2022). [Is diminishing impatience in time-dated risky prospects explained by probability weighting? CLTS Working Paper No. 3/2022](#). Center for Land Tenure Studies, Norwegian University of Life Sciences, Aas, Norway.

Abstract of the Paper

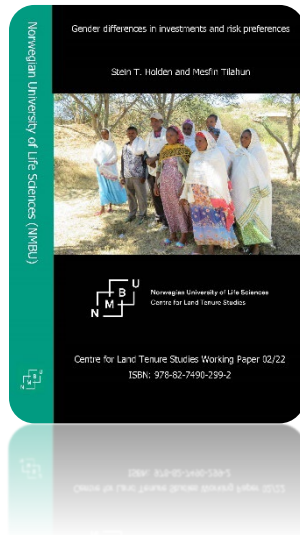


We use a field experiment and a within-subject design based on multiple Choice Lists (CLs) that integrate time and risk. Diminishing impatience with extended time horizons is studied by varying time horizons from one week to two years. Time-dated risky prospects are constant within CLs and are always compared with time-dated certain amounts to identify time dated Certainty Equivalents. Non-linear probability weighting is modeled with a 2-parameter Prelec function. First, we identify a strong diminishing impatience associated with longer time delay between prospects. Second, we test whether non-linear probability weighting can explain and reduce the observed diminishing impatience by replacing linear probability weighting with an estimated inverted S-shaped Prelec function. We find that this does not reduce the observed degree of diminishing impatience. We conclude that the observed diminishing impatience is neither

explained by the combination of present bias and certainty bias nor by non-linear weighting of risk in future prospects.

10. Stein T. Holden and Mesfin Tilahun (2022). [Gender differences in investments and risk preferences. CLTS Working Paper No. 2/2022](#). Center for Land Tenure Studies, Norwegian University of Life Sciences, Aas, Norway.

Abstract of the Paper



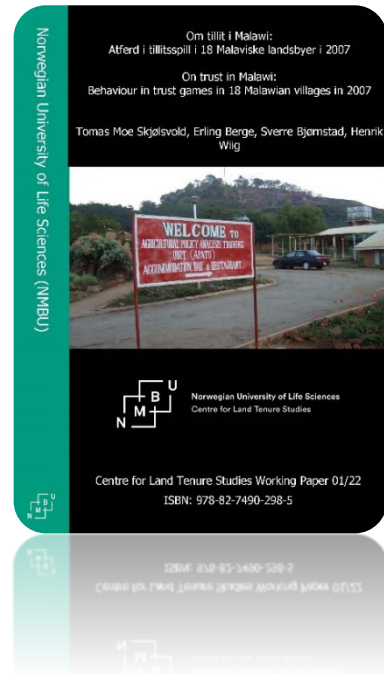
We analyze individual investment behavior among 822 young men and women that are members of 111 formal business groups in northern Ethiopia. We collected baseline data and investment data one year later combined with incentivized field experiments to obtain dis-aggregated risk preference data. We find that business women on average invest significantly less at individual level than business men but Cohen's d values for the gender difference are moderate in size. Women are found to have higher Constant Relative Risk Aversion coefficients, to be more loss averse, but also to be more optimistic in their expectations than men. Women were also poorer in non-land assets, came from more land-poor parents and had lower incomes. The gender differences in risk attitudes and baseline endowments could explain some of but not all the gender differences in investments.

11. Tomas Moe Skjølvold, Erling Berge, Sverre Bjørnstad and Henrik Wiig (2022). [On trust in Malawi: Behaviour in trust games in 18 Malawian villages in 2007. CLTS Working Paper No. 1/2022](#). Center for Land Tenure Studies, Norwegian University of Life Sciences, Aas, Norway.

Abstract of the Paper

This paper originates from a series of “trust games” performed in Malawi during the summer of 2007. The results from the games are interpreted as pure stylized cases of a social dilemma. Some dilemmas, such as the prisoner’s dilemma, are more difficult to resolve than others. These are also called social traps. A group encountering a social trap can resolve it to the advantage of the group only by cooperation. The experiments were conducted in 18 villages, 6 from each of the 3 regions North, Centre, and South. Fifteen households from each village participated in the study. These were first interviewed, and later one person from each household was selected to play a trust game against another representative from the village. We lost a total of 3 players resulting in game results from 267 trust games. The interviews were analysed separately and provided the material for

the construction of indexes by factor analysis (Berge et al. 2020a). The paper discusses the problems encountered in using this type of experiments. Economists specializing in experiments like this will often presume that results from a trust game are a good measure of general trust. The analysis of our data suggests that the game results measure actions. Actions that can be interpreted as demonstrating trust, but not trust as such. The trust games played are constructed as a social trap. The analysis of the data suggests that there is correlation between living in a village imbued by a culture of cooperation and the ability to avoid stepping into the trap in the game. All villages seem to be characterized by a culture of cooperation. Hence all players on average earn by participating in the game. But we also see that just as the theory predicts, the ego-centred players in a village with a high level of cooperation are the players who earn the most. By constructing indexes that characterize the context of each player we see that the ego-centred player earns most in villages located closer to an urban centre and where trust in relatives and family members are strongest. The winnings are somewhat less where trust in traditional authorities is stronger. The outcomes for these general relations are modified by the fact that the impact of the indexes is different in the different regions South, Centre, and North.



CLTS Papers statistics at S-WoPEc and RePEc

S-WoPEc acts as a clearing house and central repository for bibliographic data about Nordic working papers in Economics. CLTS working papers are also available in electronic form and can be downloaded from S-WoPEc and EconStor. S-WoPEc is part of RePEc (Research Papers in Economics), an online platform with an effort to coordinate the dissemination of information about Working Papers in Economics. Based on RePEc statistics, Table 1 and Figure 1 shows that on average, people viewed the abstracts 39 times in 2022 compared to the 92 views in 2021, which represents a 57 percent drop across the years. In 2022, there were more views in the first quarter of the year compared to the last quarter. For paper downloads, the centre achieved a 37 percent increase, particularly in the last quarter of the year. Figure 2 shows the long-term trend of CLTS visibility statistics. The different years show unique patterns with few spikes in within the year.

Table 1. CLTS visibility statistics from RePEc in 2021 and 2022

Month	Paper Downloads			Abstract Views		
	2021	2022	Percent Change	2021	2022	Percent Change
January	28	22	-21%	133	46	-65%
February	20	56	180%	99	46	-54%
March	24	15	-38%	107	46	-57%
April	18	14	-22%	98	47	-52%
May	34	9	-74%	115	35	-70%
June	16	11	-31%	77	43	-44%
July	14	8	-43%	69	33	-52%
August	9	7	-22%	107	40	-63%
September	18	5	-72%	64	27	-58%
October	46	7	-85%	67	26	-61%
November	17	109	541%	88	41	-53%
December	11	25	127%	79	39	-51%
AVERAGE	21	24	37%	92	39	-57%

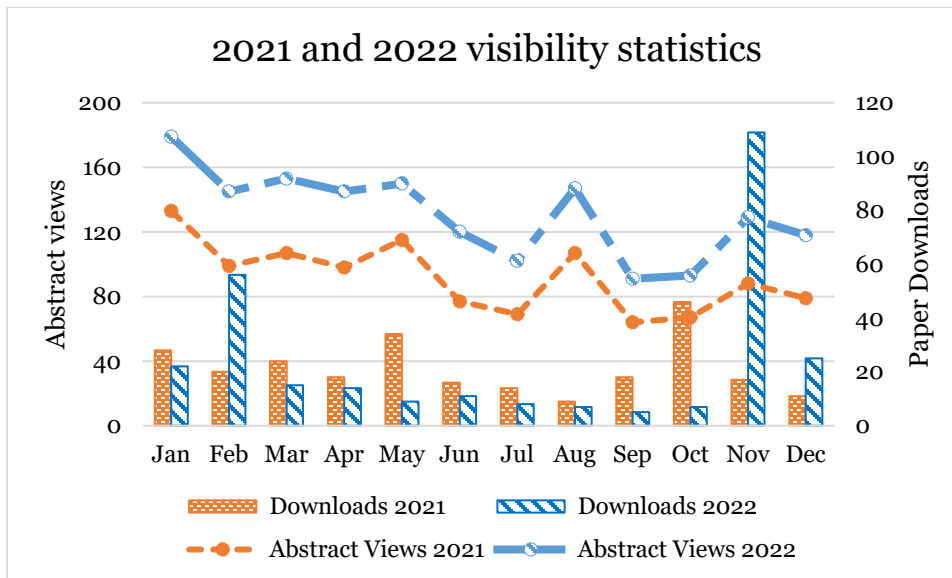


Figure 1. 2021 and 2022 CLTS Visibility statistics from RePec

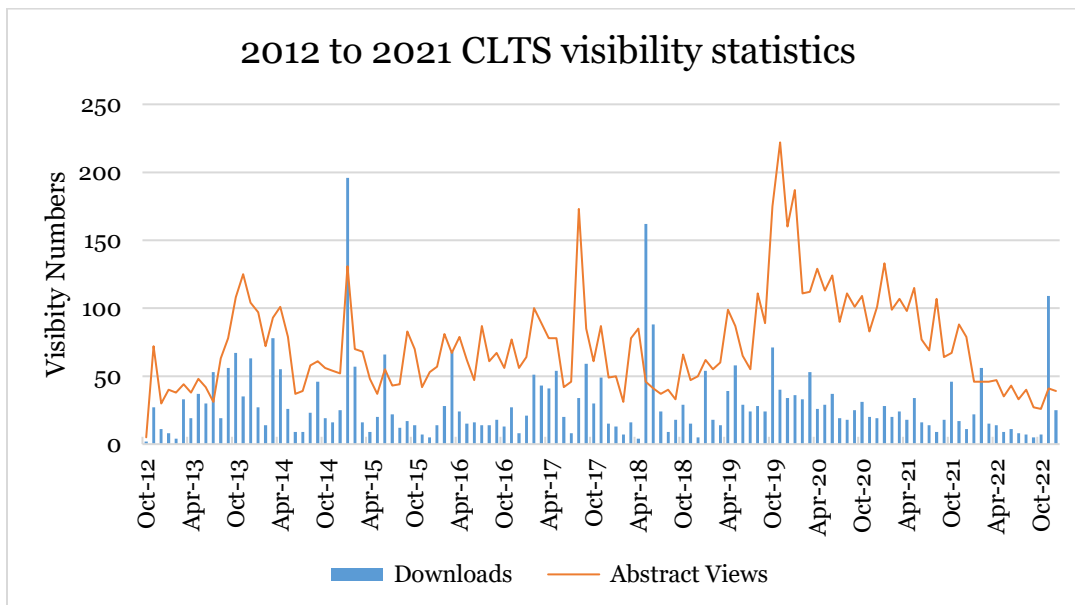


Figure 2. 2012 to 2021 CLTS Visibility statistics from RePec

CLTS Websites

- The activities of the centre are documented at the website www.nmbu.no/clts.
- Our main page is in English, but we also have a Norwegian website:
- <https://www.nmbu.no/fakultet/hh/forskning/forskningssentre/clts>, where research and activities are published in Norwegian.

Brage

All of CLTS Working Papers and Reports can be obtained in Brage:

- **CLTS Working Papers:** <https://nmbu.brage.unit.no/nmbu-xmlui/handle/11250/2446458>
- **CLTS Reports:** <https://nmbu.brage.unit.no/nmbu-xmlui/handle/11250/2446455>

LandPortal

- The CLTS research work is also accessible through the Landportal webpage: <https://landportal.org/organization/centre-land-tenure-studies>

EconStor

- The CLTS working papers and reports are available through **EconStor**. <https://www.econstor.eu/handle/10419/242695>