

**CERE**



**2019**

2019

book chapters

9

journal articles

26

reports

5

working papers

15

seminars

19

unique visitors on web each month

560

## Content

<b>Research Director's Welcome</b>	<b>4</b>
<b>Personnel and Visitors</b>	<b>6</b>
<b>Board Members 2019</b>	<b>8</b>
<b>CERE Activities</b>	<b>10</b>
<b>A Journal Article</b>	<b>12</b>
<b>A CERE Working Paper</b>	<b>12</b>
<b>Publications and Outreach 2018-2019</b>	<b>14</b>
<b>Books and book chapters</b>	<b>14</b>
<b>Journal articles</b>	<b>15</b>
<b>Working papers</b>	<b>18</b>
<b>Popular science</b>	<b>20</b>
<b>Other reports</b>	<b>20</b>
<b>Public media</b>	<b>21</b>



photo: Mona Bonta Bergman

## Research Director's Welcome

2019 was a special year for CERE. Bengt Kriström took a step back from being research director to become senior advisor to the Board. I take the opportunity to thank Bengt for all the hard work he has done for CERE and I am certain that he will continue to contribute to CERE's mission in his new role. Bengt was one of the founders of CERE and I really want to stress that without his excellence and international contacts we would not be where we are today! Bengt has also been appointed to the Board of the Society for Benefit-Cost Analysis. We congratulate Bengt for this honorable appointment. Bengt's leadership will be missed but me and our new deputy research director, Francisco X. Aguilar, will do our best to fill the gap left by Bengt's new role.

In 2019 we celebrated the 10th anniversary for CERE. The celebration started in September with an open lecture on ecosystem services by James (Jim) Boyd, Senior Fellow and Thomas Klutznick Chair in Environmental Policy at Resources for the Future. In October Professor Jason Shogren, University of Wyoming, lectured on how we can commit to public goods without involving money. Jason is a long friend of CERE and in 2019 was named Honorary Doctor by the faculty of forest sciences at SLU. As part of the celebrations both Jim and Jason visited two high schools in Umeå to talk to students about economics and environmental issues. The great finale of the 10th anniversary celebrations took place on 28 November. We arranged public lectures by our own young researchers and Ph.D. students in the morning which was a well-attended and

appreciated event showcasing the broad spectrum of research conducted at CERE. In the afternoon, we had special guests discussing CERE's role and impact over its first 10 years, as well as the role of forests and the transportation sector in supporting climate policy. One conclusion from the day was that the kind of research we do at CERE is important and has a direct impact on society.

Also worth celebrating is Francisco's appointment to lead the UNECE/FAO Timber Section's Team of Specialists and that Jurate Jaraite and Lars Persson were appointed Docents (associate professors) by UmU in 2019. We also had the honor of welcoming Adan Martinez-Cruz, Senior Lecturer at SLU, to the CERE team. Among Ph.D. students, Brian Danley defended his thesis with flying colours. In 2019 we have had several researchers visiting CERE including Moriah Boastian, Lewis & Clarke College, who spent the spring semester with us and Brent Sohngen, Ohio State University, who stayed with us in June and also participated at the Ulvön Conference. Their visits were much appreciated by our team. This past year we also had Jurate and Andrius Kazukauskas leave for new positions at the University of Vilnius in Lithuania. Although they will still be CERE associates, their physical presence and daily interactions will be highly missed.

CERE had a great and exciting 2019 and we do not expect less for the coming years. Considering our line-up and the emerging challenges faced by society, CERE will have an important role to play and will do so.



photos: Mona Bonta Bergman

## Personnel and Visitors

### Professors

Francisco X. Aguilar  
Runar Brännlund  
Peichen Gong  
Bengt Kriström  
Magnus Lindmark  
Karl-Gustaf Löfgren  
Bo Ranneby

### Associate Professors

Ann-Kristin Bergquist  
Göran Bostedt  
Jurate Jaraite  
Tommy Lundgren  
Lars Persson

### Other Researchers

Oben Kurtulus Bayrak  
Thomas Broberg  
Ola Carlén  
Amare Teklay Hailu  
Andrius Kazukauskas  
Chandra Kiran B Krishnamurthy  
Adan L. Martinez-Cruz  
Marco Persichina  
Mattias Vesterberg  
Camilla Widmark  
Wenchao Zhou

### Graduate Students

Golnaz Amjadi  
Victoria S Ayubu  
Brian Danley  
Aemiro Melkamu Daniel  
Alejandro Egüez  
Sef Meens-Eriksson  
Xiao Hu  
Sandra Schusser  
Anders Vesterberg

### Communication

Mona Bonta Bergman

### Guest Researchers

Moriah Bostian, Associate Professor  
Lewis & Clark College, USA  
Brent Sohngen, Professor  
The Ohio State University, USA

### Associates

Maria Arvaniti, Doctor  
ETH Zürich, Switzerland  
Kelly de Bruin, Doctor  
Economic and Social Research Institute, Ireland  
Shawna Grosskopf, Professor Emerita  
Oregon State University, USA  
Jinggong Guo, Doctor  
United States Forest Service, USA  
Per-Olov Johansson, Professor Emeritus  
Stockholm School of Economics, Sweden  
Amin Karimu, Doctor  
University of Ghana Business School, Ghana  
Klarizze Puzon, Assistant Professor  
Osaka University, Japan  
Anton Paulrud, CEO  
Swedish Pelagic Federation Producer Organisation, Sweden  
Erlend Dancke Sandorf, Doctor  
University of Stirling, Scotland

### Visitors

Anne Borge-Johannesen, Professor  
Norwegian University of Science and Technology (NTNU), Norway  
James Boyd, Director  
Resources For the Future, USA  
Jette Bredahl Jacobsen, Professor  
University of Copenhagen, Denmark  
Rolf Färe, Professor  
Oregon State University, USA  
Lars Hultkrantz, Professor Emeritus  
Örebro University, Sweden  
Michael A. Kilgore, Professor  
University of Minnesota, USA  
James Rising, Assistant Professorial Research Fellow  
London School of Economics, UK  
Jason Shogren, Professor  
University of Wyoming, USA



photo: Mona Bonta Bergman



photo: Mona Bonta Bergman



photo: Linn Karlsson

## Board Members 2019

### Board of Directors

The Board of Directors oversees the Centre's activities and review the Strategic Plan. It consists of researchers from across the environmental science and economic disciplines in Umeå.

**Chair: Sofia Lundberg** - Dean at Umeå School of Business and Economics and Statistics (USBE), Umeå University

**Ove Nilsson** - Professor, Department of Forest Genetics and Plant Physiology, Swedish University of Agricultural Sciences (SLU) Umeå and Director of Umeå Plant Science Centre

**Carina Keskitalo** - Professor, Department of Social and Economic Geography, Umeå University

**Göran Ericsson** - Professor, and Head of Department of Wildlife, Fish and Environmental Studies, SLU Umeå

**Johan Fransson** - Associate Professor, and Head of Department of Forest Resource Management, SLU Umeå

**Camilla Widmark** - Doctor, and Head of Department of Forest Economics, SLU Umeå

#### Research Director of CERE:

**Runar Brännlund** - Professor, USBE, Umeå University, Adjunct board member

#### Deputy Research Director of CERE:

**Francisco X. Aguilar** - Professor, Department of Forest Economics, SLU Umeå, Adjunct board member

#### Scientific Secretaries of CERE:

**Jūratė Jaraitė** - Assistant Professor, USBE, Umeå University, Adjunct board member

**Thomas Broberg** - Assistant Professor, USBE, Umeå University, Adjunct board member

### Our Advisory Board for Strategic Issues

The Advisory Board provides invaluable knowledge, experience and advice from their respective industries and areas of expertise. They visit CERE biannually.

**Lars Bergman** - Professor, Former President, Stockholm School of Economics

**Torbjörn Fagerström** - Professor, Former CEO, Swedish Foundation for Strategic Research

**Yvonne Fredriksson** - Former Director General, Swedish Energy Markets Inspectorate, Founder of WHYWE consulting AB

**Kjell Jansson** - Former CEO, Swedenergy

**Anders Kristoffersson** - Former Senior Advisor, Ministry of Finance

**Mårten Larsson** - Head of Industrial Policy Department, Swedish Forest Industries Federation

#### Top from left:

Sofia Lundberg, Chair and Dean at Umeå School of Business and Economics and Statistics, Umeå university. Photo: Umeå University.

Ove Nilsson, Professor, Department of Forest Genetics and Plant Physiology, SLU Umeå and Director of Umeå Plant Science Centre. Photo: Julio Gonzalez.

Camilla Widmark, Doctor and Head of Department of Forest Economics, SLU Umeå. Photo: Mona Bonta Bergman

#### Bottom from left:

Carina Keskitalo, Professor, Department of Social and Economic Geography, Umeå University. Photo: Umeå University.

Göran Ericsson, Professor, and Head of Department of Wildlife, Fish and Environmental Studies, SLU Umeå. Photo: Jenny Svennås-Gillner.

Johan Fransson, Associate Professor, and Head of Department of Forest Resource Management, SLU Umeå. Photo: Mona Bonta Bergman.





## CERE Activities

After a short hiatus in 2018 we gathered in Ammarnäs again to listen to various presentations and enjoy some light-hearted moments cooking together, doing winter sports, and relaxing in the sauna. Among the talks, we learned about Moriah Bostian's research on spatial targeting of agri-environmental policy, Marco Perichinas modeling of agents' altruistic behavior, and Ann-Kristin Bergquist's historical analysis of waste reuse and recycling.

The masters students challenged the Department of Economics at Umeå University to a friendly game of the Umeå national sport of Brännboll, were it became quite clear that experience and knowledge in Economics will only get you thus far.

The 26th Ulvön Conference on Environmental Economics in 2019 featured, as always, extraordinary keynote speakers. Valentina Bosetti (Bocconi University), John Hassler (IIES), Snorre Kverndokk (Frisch Centre, Oslo University), and Gunnar Eskeland (Norwegian School of Economics) gave excellent keynote presentations as well as constructive comments on the participant presentations throughout the conference. As always, the Ulvön conference is not complete without the tasting of fermented Baltic herring. Some said it tasted like an excellent Gorgonzola while others - in the true spirit of Ulvön - proposed procedures to make it taste even better.

The Journal of Forest Economics has transitioned to a new editorial house (NOW Publishers). Ola Carlen (Executive Editor), and Peichen Gong and Runar Brännlund (Editors-in-Chief) successfully navigated this process. We encourage all our members and

friends to consider our Journal as an outlet for their research. Our new submission portal can be found at [www.nowpublishers.com/JFE](http://www.nowpublishers.com/JFE).

Camilla Widmark and Mona Bonta Bergman, along with Ann-Katrin Israelsson (SLU Department of Forest Economics) were busy-bees hosting the pan-European Barents Forest Forum 2019. At the Forum the new ForBioeconomy network coordinated by Camilla was showcased. ForBioeconomy offers an array of international activities for researchers, policy-makers and forest stakeholders. More details are available at [www.forbioeconomy.com](http://www.forbioeconomy.com).

At CERE we take into consideration all our many stakeholders, which include potential future members! In 2019 we engaged with various high-schools in the Umeå area to talk with students about environmental economics and how exciting a field of study it is. For instance, Francisco Aguilar and Jason Shogren visited the local Waldorf School to chat about the importance of economics in addressing climate change. Runar Brännlund had several meetings with high-school students who wanted to know more about climate change policy. Camilla Widmark, Mona Bonta Bergman, and Ann-Katrin Israelsson coordinated a very well attended open-day exhibit illustrating the role of forests in the bioeconomy. It included a quiz asking attendees which products came from forests and an appearance by SLU's mascot.

photo: Anna Morén





photo: Mona Bonta Bergman



photo: Linn Karlsson



photo: Mona Bonta Bergman



photo: Mona Bonta Bergman



photo: Mona Bonta Bergman



photo: Chandra K. Krishnamurthy

## A Journal Article

### Effects of Energy Performance Certificates on Investment: A Quasi-natural Experiment Approach

Why do households seem to refrain from investing in energy efficiency despite it being financially profitable? One reason might be a lack of knowledge about investment possibilities. For instance, some are simply not aware of what they can do to enhance energy efficiency and their associated benefits and costs. Energy performance certificates (EPCs) have been promoted to overcome such information shortages.

This paper shows that the effect of EPCs on investments is limited to a few heating system-related measures where the energy-savings component is the main feature. A major contribution of this paper is the use of an experimental design that allows ruling out investments that would have taken place regardless of the issuance of EPCs. From a policy perspective, EPCs respond to European Union Directives where individual EU countries are responsible for their implementation. The limited effect on households' investments in energy efficiency raises concerns about the cost-effectiveness of the EPC policy. Currently, EPCs are largely utilized as a tool to comply with regulations when selling a house; energy efficiency is not necessarily the main driver behind an EPC. Improved communication may increase the perceived utility and cost-effectiveness of EPCs.

Thomas Broberg, Alejandro Egüez, & Andrius Kažukauskas (2019) Energy Economics 84, 104480

## A CERE Working Paper

### Efficient and Sustainable Bioenergy Production in Swedish Forests – a Network DEA Approach

The paper main objective is to assess the efficiency of bioenergy production from Swedish forests. Results shed light on three questions: To what degree are forest fuels inefficiently produced in past and current forestry practices from a production theoretical perspective? Has efficiency improved over time? Where are least efficient forests located? What is the potential to increase bioenergy production by eliminating inefficiencies while sustaining biodiversity and carbon balances?

Focus is on the extraction of branches and tops or felling residues used for energy (GROT). The researchers use a network Data Envelopment Analysis (DEA) approach to measure efficiency. They formulate a DEA model that maximizes total revenue from sawtimber, pulpwood, fuelwood and bioenergy, conditional on ecological requirements (CO<sub>2</sub> emissions and sequestration, and biodiversity). The model is applied to county-level panel data of Swedish forests 2008-2014. Should inefficiency be completely removed, the researchers estimate the potential change in bioenergy supply, CO<sub>2</sub> emissions, and biodiversity. The total potential of increase in bioenergy production from Swedish forests is 9.8%. The researchers estimate that the total removal of GROT would increase from 57.2 million m<sup>3</sup> to 62.8 million m<sup>3</sup>. Correspondingly, CO<sub>2</sub> emissions from combustion of bioenergy would also increase and net sequestered carbon would be reduced, too. Another finding is that the deadwood left on the site would increase in most counties which could contribute to biodiversity conservation.

Wenchao Zhou, Moriah Bostian, Rolf Färe, Shawna Grosskopf, & Tommy Lundgren  
CERE WP #2019-12



photo: Mona Bonta Bergman

## Publications and Outreach 2018-2019

### Books and book chapters

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Aguilar, F.X. (Ed.) (2018) *Wood Energy in the ECE Region: Data, Trends and Outlook in Europe, the Commonwealth of Independent States and North America*. United Nations: United Nations publication. ISBN: 978-92-1-117154-9

Aguilar, F. X., Kelly, M. C., & Danley, B. (2019). Total Economic Value, Ecosystem Services and the Role of Public Policy Instruments in the Creation and Destruction of Forest Values. In *Services in Family Forestry* (pp. 103-118). Springer, Cham

Bergquist, Ann-Kristin (2019) Business and Sustainability. In *Routledge Companion to The Makers of Global Business*, ed. Da Silva Lopes, Teresa, Lubinski, Christina & Tworek, Heidi, Routledge.

Bergquist, A-K & Söderholm, K (2018) Greening of the Pulp and Paper industry. Sweden in Comparative Perspective. In *Technological Transformation in the Global Paper Industry 1800–2015: Comparative Perspectives*. ed. Särkkä, Timo, Gutiérrez-Poch, Miquel & Kuhlberg, Mark, Springer.

Carlén, B., & Kriström, B. (2019). Are Climate Policies in the Nordic Countries Cost-Effective? In Calmfors, L., Hassler, J., Nasiritousi, N., Bäckstrand, K., Silbye, F., Sørensen, P. B., Carlén, B., Kriström, B., Greaker, M., Golombek, R., Hoel, M. & Holtsmark, K. (Eds.) *Nordic Economic Policy Review 2019: Climate Policies in the Nordics*. Nordic Council of Ministers, Copenhagen.

Dam, L., Lundgren, T., & Scholtens, B. (2019). Environmental Responsibility – Theoretical Perspective (Ch. 10). In McWilliams, A., Rupp, D. E., Siegel, D. S., Stahl, G. K., & Waldman, D. A. (Eds.). *The Oxford handbook of corporate social responsibility: Psychological and organizational perspectives*. Oxford University Press.

Johansson, P.-O., & Kriström, B. (2018). *Cost-Benefit Analysis*. Cambridge University Press.

Lindmark, M. (2019). Rethinking the Environmental State: An Economic History of the Swedish Environmental Kuznets Curve for Carbon. In Jonathan Chaplin, Michael Politt, David Reiner, Paul Warde & Marc Ozawa (Eds.) In *Search of Good Energy Policy*, Cambridge: Cambridge University Press, 139-164.

Lindmark, M. (2019). Greening the national accounts: Basic concepts and a case study of historical environmental accounting for Sweden. In Sevil Acar & Erinc Yeldan (Eds.) *Handbook in Green Accounting*, Academic Press, 1-17.

Lindmark, M., & Acar, S. (2019). Riders on the Storm: How Hard Did Robert Gordon's Environmental Headwind Blow in the Past? In Sevil Acar & Erinc Yeldan (Eds.) *Handbook in Green Accounting*, Academic Press, 135-151.

Lundgren, T., Dam, L., & Scholtens, B. (2019). Sustainable Business Practices—An Environmental Economics Perspective. In *Challenges in Managing Sustainable Business* (pp. 205-229). Palgrave Macmillan, Cham.

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## Journal articles

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- Acar, S., Söderholm, P., & Brännlund, R. (2018). Convergence of per capita carbon dioxide emissions: implications and meta-analysis. *Climate Policy*, 18(4), 512-525.
- Aguilar, F. X., & Kelly, M. C. (2019). US family forest management coupling natural and human systems: Role of markets and public policy instruments. *Landscape and Urban Planning*, 188, 43-53.
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- Broberg, T., & Egüez, A. (2018). Blame it on the owner—Ownership and energy performance of multi-dwelling buildings. *Energy Economics*, 72, 108-119.

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