Does gender count: female forest ownership in Finland

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Small-scale and Community Forestry and the Changing Nature of Forest Landscapes

IUFRO 3.08.00 – Small-scale Forestry Conference

Sunshine Coast, Australia, 11–15, October, 2015
Outline of the presentation

- About Finnish forestry
- How to study gender
- Examples on gender differences in timber supply and silviculture
- What about forestry extension?
- Data
- Proportion of female owners
- Extension activity by gender
- Conclusions
Forestry in Finland

Metsämaa – Forest land
20,3 milj. ha – mll. ha

Rakennettu maa, liikennealueet ym.
Built-up areas, transport routes, etc.
1,5 milj. ha – mll. ha

Metsätalousmaa (26,2 milj. ha) = Metsämaa + kitumaa + joutomaa + muu metsätalousmaa
Forestry land (26.2 mill. ha) = Forest land + poorly productive forest land + unproductive land + other forestry land

Lähde: Metsäntutkimuslaitos, valtakunnan metsien inventointi – Source: Finnish Forest Research Institute

Maankäyttö Suomessa
Land use in Finland

Metsätilastollinen vuosikirja 2014
Forestry in Finland

Metsätalousmaa
Forestry land
26,2 milj. ha – mill. ha

Puuston tilavuus
Growing stock volume
2 357 milj. m³ – mill. m³

Puuston kasvu
Annual increment of growing stock
104 milj. m³ – mill. m³

Yksityiset
Private

Muut – Others
Yhtiöt
Companies

Valtio
State

Lähde: Metsätutkimuslaitos, valtkunnan metsien inventointi – Source: Finnish Forest Research Institute

Omistajaryhmien osuudet metsätalousmaasta, puuston tilavuudesta ja kasvusta
Forestry land, growing stock volume and annual increment of growing stock by forest ownership category

Metsätilastollinen vuosikirja 2014
How to study gender?
(Follo et al. 2015)

 ✓ gender as an empirical variable, differences in numbers between male and female forest owners

 ✓ gender as a structuralizing category, i.e. gender-structures affect e.g. actual behavior of female and male forest owners and the self-evaluation of forestry competence

 ✓ gender as a meaning category: how meaning produces behavior and behavior produces meanings, and how both shape institutions and natural and artificial matter

 ✓ gender research ≠ feminist research
Factors affecting NIPF timber supply
Dependent variable: roundwood harvested m³/ha/year
(Kuuluvainen et al. 2014)

- Continuous variables
  - Timber price, €*
  - Timber stock, m³/ha*
  - Forest acreage, ha*
  - Owner’s age, yrs*
  - Income, €*

- Dichotomous variables
  - Farmer*
  - Male*
  - Tenure ≤ 5 yrs
  - Recreationist*
  - Self-employed*
  - Investor
  - Indifferent*

*The statistically significant effects on average cuttings.
* The statistically significant effects on average cuttings
SEM model: Timber stand improvement

Karppinen & Berghäll 2015

GFI: .944, CFI: .909, RMSEA: .067

Profitability
Growth
Scenery
Access
Excercise

FMA officer
Purchaser
Family

Labor expensive
Too small subsidies
Availability of labor
Physical limits
Lack of time
Lack of equipment

Attitude $\Sigma b_{iei}$

Subjective Norm $\Sigma n_{bimci}$

Perceived Behavioral Control $\Sigma c_{bip_i}$

Behavioral Intention to conduct TSI
Does gender matter?

Male
Female
influenced more by subjective norms

Male
Female

Attitude $\Sigma b_i e_i$

Subjective Norm $\Sigma n b_i m c_i$

Perceived Behavioral Control $\Sigma c b_i p_i$

Behavioral Intention to conduct SI

$.26$

$.39$

$.16$

$.09$

$.09$

$.16$

$.10$

$.16$
Gender differences in forestry behavior

✓ women sell **one cubic meter per hectare and per year less** than men, *ceteris paribus*

✓ female owners sold **less frequently, but larger quantities** per sale than male owners

✓ women may be **more price-responsive** as timber suppliers than men

✓ female owners’ timber stand improvement intentions were **more influenced by norm pressures** and less by attitudes than the men’s intentions

✓ **gender differences in using forestry extension services at stake?**
Data

- population of Finnish NIPF holdings, forest area > 5 ha
- nationwide mail survey on NIPF owners conducted in 2009
- a systematic sampling by regions producing regionally representative forest holding size distributions (total sample 13,000)
- response rate 49% and slightly biased: farmers under-represented (effective sample size 6,318)
- information on owner demographics, holding characteristics, attendance at forestry extension
- one responded questionnaire from each holding leads to male bias in the data

Leppänen 2010, Hänninen et al. 2011, Paaja 2015
Proportion of female and male forest owners
(Paaja 2015)

Proportion of female owners (one holding - one response): 25 %

<table>
<thead>
<tr>
<th></th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of forest owners</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single and together with spouse</td>
<td>38</td>
<td>62</td>
</tr>
<tr>
<td>Single, together with spouse and joint ownerships</td>
<td>44</td>
<td>56</td>
</tr>
</tbody>
</table>

The population statistics of Finland, women account for 50.8 % (31.12.2014)
## Forest owners' use of extension services by gender
(Paaja 2015)

<table>
<thead>
<tr>
<th>During 2004-2008</th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of forest owners</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional aid</td>
<td>79</td>
<td>88</td>
</tr>
<tr>
<td>Seminars, lectures, excursions</td>
<td>29</td>
<td>37</td>
</tr>
<tr>
<td>Courses</td>
<td>12</td>
<td>15</td>
</tr>
<tr>
<td>Forest management plans</td>
<td>38</td>
<td>47</td>
</tr>
<tr>
<td>Activity index</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sum of used extension services</td>
<td>1.58</td>
<td>1.88</td>
</tr>
<tr>
<td>above, scale 0-4</td>
<td></td>
<td></td>
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</tbody>
</table>
Factors affecting extension activity by gender

OLS model, statistically significant Beta coefficients at 5 % level

Owner's age, yrs
Forest acreage, ha
Farmer
Residence off-farm
Multiobjective
Recreationist
Self-employed
Investor

Female
Male
reference group for objectives ignorant
Factors affecting the attendance at seminars, lectures or excursions by gender

Logit model, statistically significant odds ratios at 5 % level

- Owner's age, yrs
- Forest acreage, ha
- Farmer
- Entrepeneur
- Retired
- Other
- Residence off-farm
- Multiobjective
- Recreationist
- Self-employed
- Investor

Reference group for objectives ignorant and for occupational status wage-earners
Factors affecting the attendance at forestry courses by gender

Logit model, statistically significant odds ratios at 5% level

- Owner's age, yrs
- Forest acreage, ha
- Farmer
- Entrepeneur
- Retired
- Other
- Residence off-farm
- Multiobjective
- Recreationist
- Self-employed
- Investor

Female and Male categories with respective odds ratios.
Conclusions on the use of extension services

✓ female owners’ proportion of family forest owners around 40 % (51 % of the total Finnish population)
✓ female owners are more passive users of extension services than men
✓ for female owners, ownership objectives are more important factor explaining the use of extension services: especially non-timber objectives increase need for services
✓ also residing outside their forest estate seems to activate female owners to seek extension services
✓ one approach to activate female owners could be gender-specific extension activities, such as various networks for women and peer-to-peer learning
Literature


