

Appendix B

Figure B1. Questionnaire, University of Gothenburg

Introduction:

Hello!

(If the person we try to reach is not home, ask if the person you talk to or someone else in the household knows something about the forest. Even forest owners with very small forest holdings should be interviewed.)

My name is _____ and I call on behalf of University of Gothenburg who currently carries out a short survey regarding certified forest among forest owners in Sweden.

May I ask you a few short questions regarding forest certification?

Q1. For how long have you been a forest owner?

- 1: 0–5 years
- 2: 6–15 years
- 3: 16–25 years
- 4: 26–40 years
- 5: 41–60 years
- 6: 61 years or longer

Q2. Which forest owner association are you a member of?

- 1: Södra
- 2: Mellanskog
- 3: Norrskog
- 4: Norra Skogsägarna
- 5: Other (type): _____
- 6: None
- 7: Don't know

Q3. Is the forest you own wholly or partly certified?

- 1: Yes, the whole forest
- 2: Yes, parts
- 3: No
- 4: Don't know (To the interviewer: Is there someone else in the household who knows?) If not, go to Q12.

(If 2 in Q3)

Q4. In which municipality/municipalities are the certified forest holdings located? (Open)

(If 1 or 2 in Q3)

Q5. According to which standards is your forest certified? (Multi) Read alternatives

- 1: FSC
- 2: PEFC
- 3: Don't know

(If 1 or 2 in Q3)

Q6. In which year did you certify the forest according to FSC? (Number)

Q6.2. In which year did you certify the forest according to PEFC? (Number)

(If 3 in Q3)

Q7. Which is the main reason behind your choice of not certifying your forest? (Mark one alternative only) Don't read alternatives

- 1: None or insufficient information about certification
- 2: Too expensive, not financially profitable
- 3: Too strict requirements, I can't live up to them, don't want to lock up my forestry
- 4: Not good for the environment, does not lead up to a more sustainable forestry
- 5: Don't know anyone who is certified
- 6: Too small area
- 7: Other
- 8 Hesitant, don't know

(If 1 or 2 in Q3)

Q8. Which is the main reason behind your choice of certifying your forest? (Mark one alternative only) Don't read alternatives

- 1: Good PR for my mission
- 2: Financially profitable
- 3: Reasonable requirements, can live up to them
- 4: Good for the environment, leads up to a more sustainable forestry
- 5: Know somebody who is certified
- 6: Other
- 7: Hesitant, don't know

Q9. Which group certificate are you a part of, that is, through whom is your forest certified? (Mark one alternative only) Read alternatives

- 1: Through one of the forest associations
- 2: Through one of the forestry companies (e.g. Sveaskog, Bergvik Skog, Holmen, SCA, Statens fastighetsverk, Stora Enso)
3. Other (type): _____
- 4: Don't know

Q10. How do you pay for your forest certification?

- 1: Lump-sum payment
- 2: Payment as a member fee/annual fee
- 3: Hesitant, don't know

Q11. How much do you pay/have you paid? (Number)

If don't know: 99999

Q12. Who has the main responsibility for decisions regarding your forest holdings? Read alternatives

- 1: I make the decisions myself
- 2: I make the decisions together with advisor/manager
- 3: I make the decisions together with joint owner(s)
- 4: Advisor/manager makes the decisions
- 5: Joint owner(s) make the decisions
- 6: Hesitant, don't know

Q13. Which is your highest *completed* education?

- 1: Primary school
- 2: Secondary education or elementary school
- 3: Higher education (up to three years)
- 4: Higher education (up to four years)
- 5: Other education

These were all the questions. Thank you for your participation!

Figure B2: Histogram of the propensity score by treatment status. Polytax 0/1

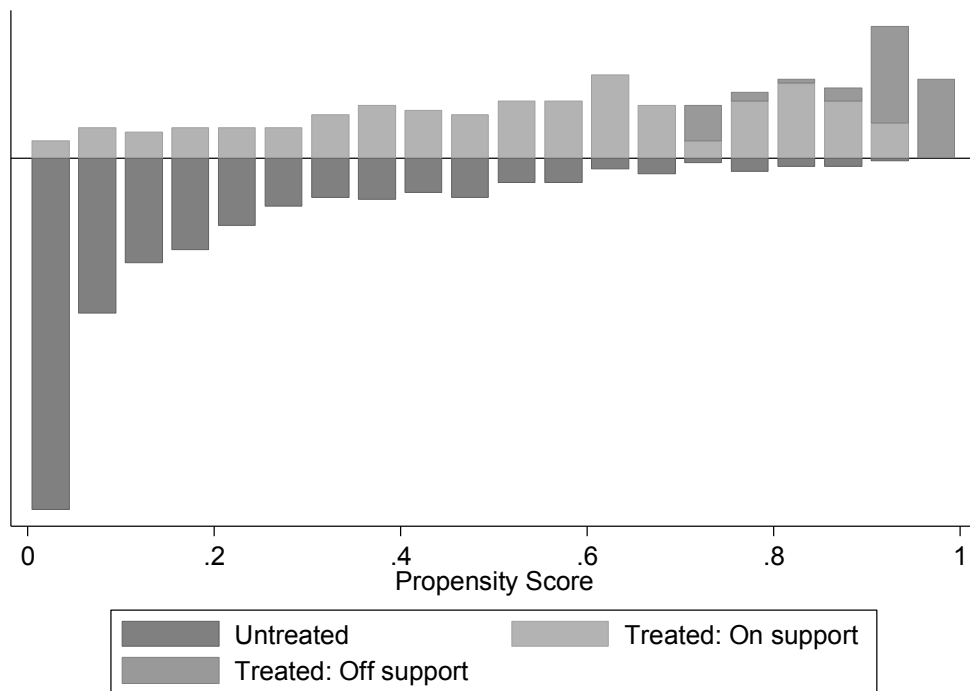


Figure B3: Histogram of the propensity score by treatment status. Polytax 5/7

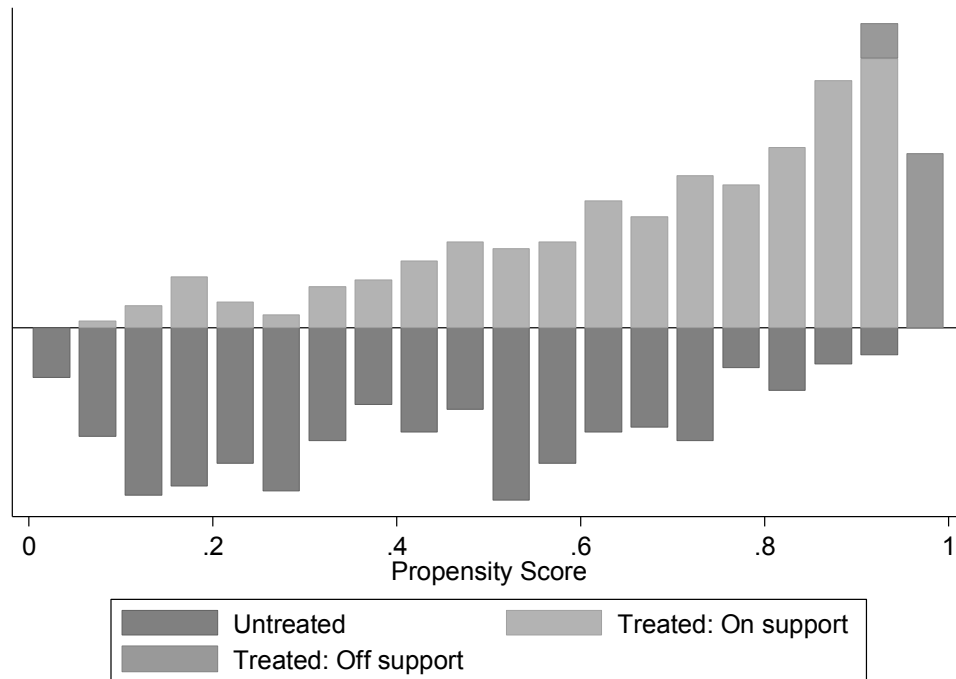


Table B1: Main motivation behind (non)certification:

What is your main reason for not choosing to certify your forest? (mark only one option)	Freq	Percent	Cum
1: No, or not enough, information about certification	101	20	20
2: Too expensive, not economically viable	39	8	27
3: Demands too tough, cannot live up to them, do not want to create lock-in effects	25	5	32
4: Not good for the environment, does not lead to sustainable forestry	7	1	33
5: Do not know anyone who is certified	7	1	35
6: Too small acreage	68	13	48
7: Other	207	40	88
8: Do not know	60	12	100
Total	514	100	
What was your main reason for becoming certified? (mark only one option)			
1: Good PR	19	3	3
2: Economically viable	293	45	48
3: Reasonable demands that are possible to fulfill	24	4	51
4: Good for the environment, leads to more sustainable forestry	153	23	75
5: Know someone / some certified	10	2	76
6: Other	119	18	95
7: Do not know	36	6	100
Total	654	100	

Table B2: Robustness test on the trimming method. Polytax 0/1 dataset.

	Noncompliance rate	Area cleared (ha)	Area cleared (IHS)	Area cleared (share)
Full sample (N=763)				
OLS	0.010 [0.045]	0.038 [0.086]	0.000 [0.032]	0.023 [0.035]
ATT with CVM	0.042 [0.059]	0.028 [0.083]	-0.003 [0.040]	0.014 [0.043]
No caliper (N=718)				
OLS	0.012 [0.045]	0.032 [0.086]	-0.004 [0.032]	0.018 [0.035]
ATT with CVM	0.037 [0.060]	0.021 [0.087]	-0.013 [0.042]	0.011 [0.044]
Caliper 0.1 (N=718)				
OLS	0.012 [0.045]	0.032 [0.086]	-0.004 [0.032]	0.018 [0.035]
ATT with CVM	0.037 [0.060]	0.021 [0.087]	-0.013 [0.042]	0.011 [0.044]
Caliper 0.02 (N=710)				
OLS	0.013 [0.045]	0.030 [0.087]	-0.005 [0.032]	0.018 [0.035]
ATT with CVM	0.066 [0.060]	0.025 [0.088]	-0.013 [0.042]	0.015 [0.042]
Caliper 0.01 (N=690)				
OLS	0.016 [0.045]	0.035 [0.088]	-0.004 [0.033]	0.022 [0.036]
ATT with CVM	0.059 [0.059]	0.029 [0.087]	-0.011 [0.039]	0.016 [0.042]

Table B3: Robustness test on the trimming method. Polytax 5/7 dataset.

	Trees left/ha	High stumps left/ha	Trees left (compliance rate)	High stumps left (compliance rate)
Full sample (N=1065)				
OLS	0.888 [0.894]	0.106 [0.156]	-0.056* [0.033]	-0.000 [0.027]
ATT with CVM	-2.095* [1.147]	-0.149 [0.241]	0.057 [0.043]	0.074* [0.039]
No caliper (N=986)				
OLS	0.839 [0.894]	0.117 [0.156]	-0.054 [0.033]	0.000 [0.027]
ATT with CVM	-2.417* [1.292]	-0.041 [0.239]	0.032 [0.046]	0.054 [0.039]
Caliper 0.1 (N=986)				
OLS	0.839 [0.894]	0.117 [0.156]	-0.054 [0.033]	0.000 [0.027]
ATT with CVM	-2.417* [1.292]	-0.041 [0.239]	0.032 [0.046]	0.054 [0.039]
Caliper 0.02 (N=986)				
OLS	0.839 [0.894]	0.117 [0.156]	-0.054 [0.033]	0.000 [0.027]
ATT with CVM	-2.417* [1.292]	-0.041 [0.239]	0.032 [0.046]	0.054 [0.039]
Caliper 0.01 (N=984)				
OLS	0.843 [0.894]	0.117 [0.156]	-0.054* [0.033]	0.000 [0.027]
ATT with CVM	-2.386* [1.290]	-0.035 [0.239]	0.030 [0.046]	0.051 [0.039]

Table B4: Determinants of certification (marginal effects after probit)
 Dependent variable: Certified plot=1; Uncertified plot=0. Polytax 0/1 dataset.

	Marginal effect	Std. Err. (Delta method)	z	P> z
Female (0/1)	-0.121	0.036	-3.350	0.001
Single decision maker (0/1)	-0.054	0.028	-1.920	0.054
Age (years)	-0.002	0.001	-1.310	0.189
Education up to Highschool (0/1)	0.060	0.037	1.630	0.104
Up to 3 years of higher education (0/1)	0.056	0.043	1.290	0.198
Up to 4 years of higher education (0/1)	0.044	0.044	1.010	0.313
Other education (0/1)	-0.026	0.073	-0.350	0.723
Medium level of experience (0/1)	0.082	0.075	1.090	0.277
High level of experience (0/1)	0.060	0.087	0.690	0.492
Owner lives in or closeby the forest plot (0/1)	0.025	0.037	0.690	0.492
Area of the plot (ha)	0.001	0.002	0.710	0.478
High soil quality (0/1)	-0.089	0.075	-1.200	0.230
Medium soil quality (0/1)	-0.080	0.085	-0.940	0.347
Forest associations (0/1)	0.236	0.026	9.020	0.000
road density (log)	0.048	0.049	0.980	0.328
Stockholms County	0.000	(omitted)		
Uppsala County	-0.035	0.123	-0.290	0.774
Södermanlands County	0.084	0.100	0.840	0.401
Östergötlands County	0.359	0.100	3.590	0.000
Jönköpings County	0.213	0.101	2.110	0.035
Kronobergs County	0.293	0.096	3.050	0.002
Kalmar County	0.303	0.089	3.420	0.001
Gotlands County	-0.155	0.135	-1.150	0.250
Blekinge County	0.365	0.103	3.550	0.000
Skåne County	0.475	0.106	4.480	0.000
Hallands County	0.433	0.094	4.600	0.000
Västra Götalands County	0.174	0.086	2.020	0.044
Värmlands County	-0.004	0.099	-0.040	0.966
Örebro County	0.077	0.103	0.750	0.456
Västmanlands County	0.120	0.117	1.030	0.304
Dalarnas County	0.036	0.093	0.390	0.695
Gävleborgs County	-0.031	0.098	-0.320	0.752
Västernorrlands County	0.002	0.089	0.020	0.984
Jämtlands County	0.104	0.071	1.470	0.142
Västerbottens County	0.172	0.069	2.480	0.013

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	Marginal effect	Std. Err. (Delta method)	z	P> z
2000	-0.148	0.153	-0.970	0.332
2001	0.020	0.136	0.150	0.884
2002	0.089	0.133	0.670	0.505
2003	0.183	0.133	1.370	0.170
2004	0.177	0.133	1.330	0.184
2005	0.213	0.142	1.500	0.133
2006	0.288	0.128	2.250	0.025
2007	0.267	0.126	2.120	0.034
2008	0.238	0.126	1.880	0.060
2009	0.282	0.125	2.250	0.025
2010	0.274	0.125	2.190	0.029
2011	0.375	0.128	2.940	0.003
2012	0.327	0.150	2.180	0.029

Notes: baseline county: Norrbottens, and baseline year 1999.

Table B5: Heckman sample selection model.

A. Polytax 0/1				
	Noncompliance rate	Area cleared (ha)	Area cleared (IHS)	Area cleared (%)
Certified (0/1)	0.010 [0.043]	0.038 [0.093]	-0.002 [0.032]	0.024 [0.034]
Selection Equation				
Female (0/1)	-0.329*** [0.068]	-0.329*** [0.068]	-0.329*** [0.068]	-0.318*** [0.069]
Age (years)	0.008*** [0.002]	0.008*** [0.002]	0.008*** [0.002]	0.008*** [0.002]
Single decision maker (0/1)	0.122* [0.067]	0.122* [0.067]	0.122* [0.067]	0.116* [0.068]
Lambda	0.233 [0.156]	-0.033 [0.325]	0.016 [0.112]	-0.008 [0.118]
Observations	2,374	2,374	2,374	2,326
Censored obs	1611	1611	1611	1611
Uncensored obs	763	763	763	715
B. Polytax 5/7				
	Trees left/ha	High stumps left/ha	Trees (noncompliance rate)	High stumps (noncompliance rate)
Certified (0/1)	0.834 [0.779]	0.101 [0.161]	-0.055* [0.032]	0.001 [0.027]
Selection Equation				
Female (0/1)	-0.320*** [0.063]	-0.320*** [0.063]	-0.320*** [0.063]	-0.320*** [0.063]
Age (years)	0.002 [0.002]	0.002 [0.002]	0.002 [0.002]	0.002 [0.002]
Single decision maker (0/1)	0.088 [0.066]	0.088 [0.066]	0.088 [0.066]	0.088 [0.066]
Lambda	4.595 [3.951]	0.765 [0.813]	-0.042 [0.160]	0.008 [0.135]
Observations	2,435	2,435	2,435	2,435
Censored obs	1370	1370	1370	1370
Uncensored obs	1065	1065	1065	1065

Table B6: Unconfoundedness assumption.
Polytax 0/1 and Polytax 5/7 datasets

	Full sample			Trimmed sample		
	Plot area	Female	Age	Plot area	Female	Age
Polytax 0/1 Analysis						
certified=1; noncertified=0	1.648**	-0.048	-0.721	0.711	-0.028	-1.423
Standard error	[0.804]	[0.052]	[1.410]	[0.853]	[0.050]	[1.368]
P-value	0.040	0.356	0.609	0.405	0.574	0.298
Observations	763	763	763	690	690	690
Polytax 5/7 Analysis						
certified=1; noncertified=0	-0.182	-0.073	0.475	-1.345	0.017	-0.496
Standard error	[0.893]	[0.048]	[1.251]	[0.957]	[0.045]	[1.295]
P-value	0.839	0.130	0.704	0.160	0.699	0.702
Observations	1,065	1,065	1,065	984	984	984

Table B7: Unobservables: Rosenbaum bounds.
Polytax 0/1 and Polytax 5/7 datasets

Gamma	Noncompliance rate (Env important areas) Polytax 0/1		Noncompliance rate (Trees left) Polytax 5/7	
	Q_mh-	p_mh-	Q_mh-	p_mh-
1	0.257	0.399	0.967	0.167
1.1	0.024	0.490	0.533	0.297
1.2	-0.188	0.575	0.137	0.446
1.3	-0.019	0.508	0.005	0.498
1.4	0.164	0.435	0.340	0.367
1.5	0.336	0.369	0.651	0.258
1.6	0.496	0.310	0.943	0.173
1.7	0.647	0.259	1.218	0.112
1.8	0.790	0.215	1.477	0.070
1.9	0.926	0.177	1.724	0.042
2	1.055	0.146	1.959	0.025
2.1	1.178	0.119	2.183	0.015
2.2	1.296	0.098	2.398	0.008
2.3	1.409	0.079	2.605	0.005
2.4	1.517	0.065	2.803	0.003
2.5	1.622	0.052	2.995	0.001
2.6	1.723	0.042	3.179	0.001
2.7	1.821	0.034	3.358	0.000
2.8	1.915	0.028	3.532	0.000
2.9	2.007	0.022	3.700	0.000
3	2.096	0.018	3.863	0.000