

Appendix

The data on leased agricultural land from the Swedish Board of Agriculture reports agricultural land area managed by farmers that either own all their land, lease all land, or partly lease their land. For the last category, the share of the area that is leased is not reported, and the area managed by this farmer category is thus unsuitable as a proxy for the area of leased land. We therefore use the area managed by farmers that lease all their agricultural land, divided by the total agricultural land¹, as a proxy for the share of leased land. The county level data is available for the years 2003, 2005, 2007, 2010, 2013, and 2016. For the years where information is missing, we assume that the share of leased land is equal to the average of the nearest foregoing and following year.

In our analysis the standard yield of winter wheat, which is the most cultivated crop in Sweden, represents the opportunity cost of agricultural land. The Swedish Board of Agriculture collects crop yield data by sampling survey areas. We calculate the standard yield of winter wheat per municipality as the average of the standard yields for the Yield Survey Areas located within the municipality in question. For cases when a yield survey was not conducted in a municipality in a given year, we assume that the municipality's standard yield equaled the average in the county.

The number of hunting permits was obtained from the Swedish Environmental Protection Agency, and data was available per municipality for the years 2005 to 2018, but for the years 2001 to 2004, only national-level data were available. To obtain the number of hunting permits per municipality from 2001 to 2004, we multiplied the average share of the municipality in all

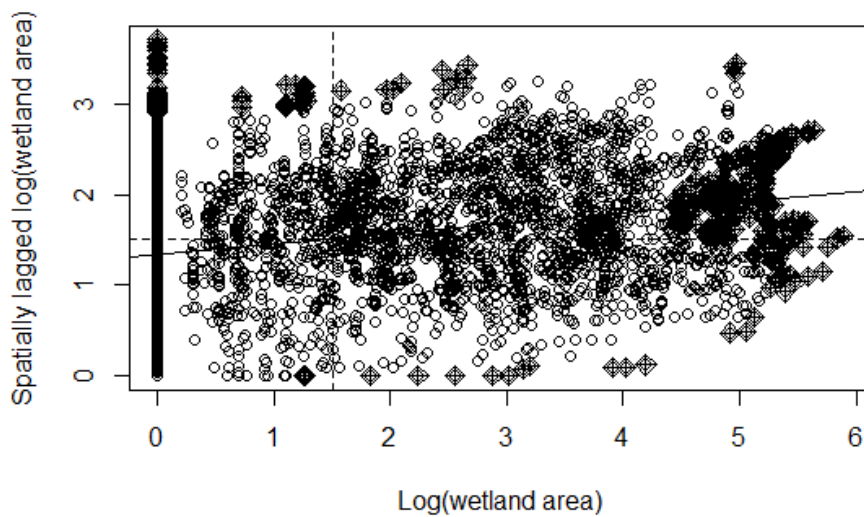
¹ Operated by both part-time and fulltime farmers.

permits between 2005 and 2018 by the total number of permits for the early years. Nature Conservation Society membership data per municipality, obtained from the society, was available from 2013 to 2018; for the remaining years, national-level data was available. The procedure for obtaining municipality-level data for the earlier years was the same as for hunting permits.

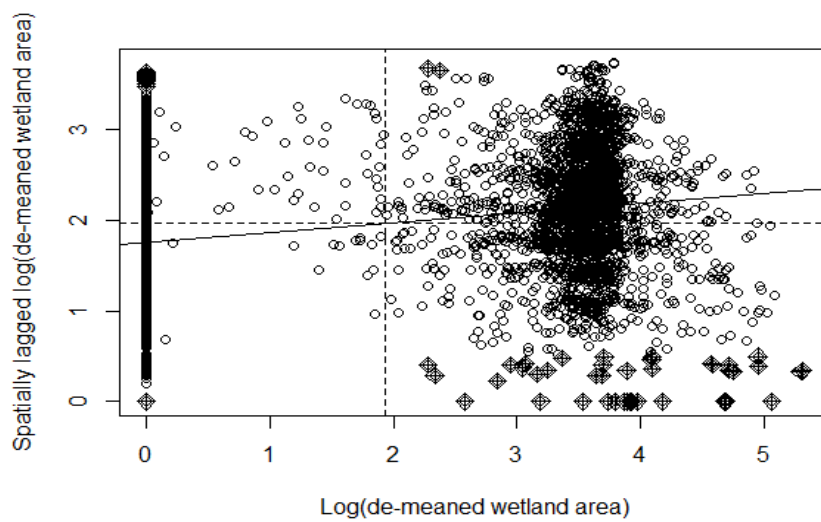
Data on the agri-environmental support for nitrogen leakage reduction provided by the Swedish Board of Agriculture is reported at the county level. We impute the data at the municipality level by assuming that the support is distributed across municipalities according to the municipalities' share of agricultural land in the county.

A. Figures

(a)



(b)



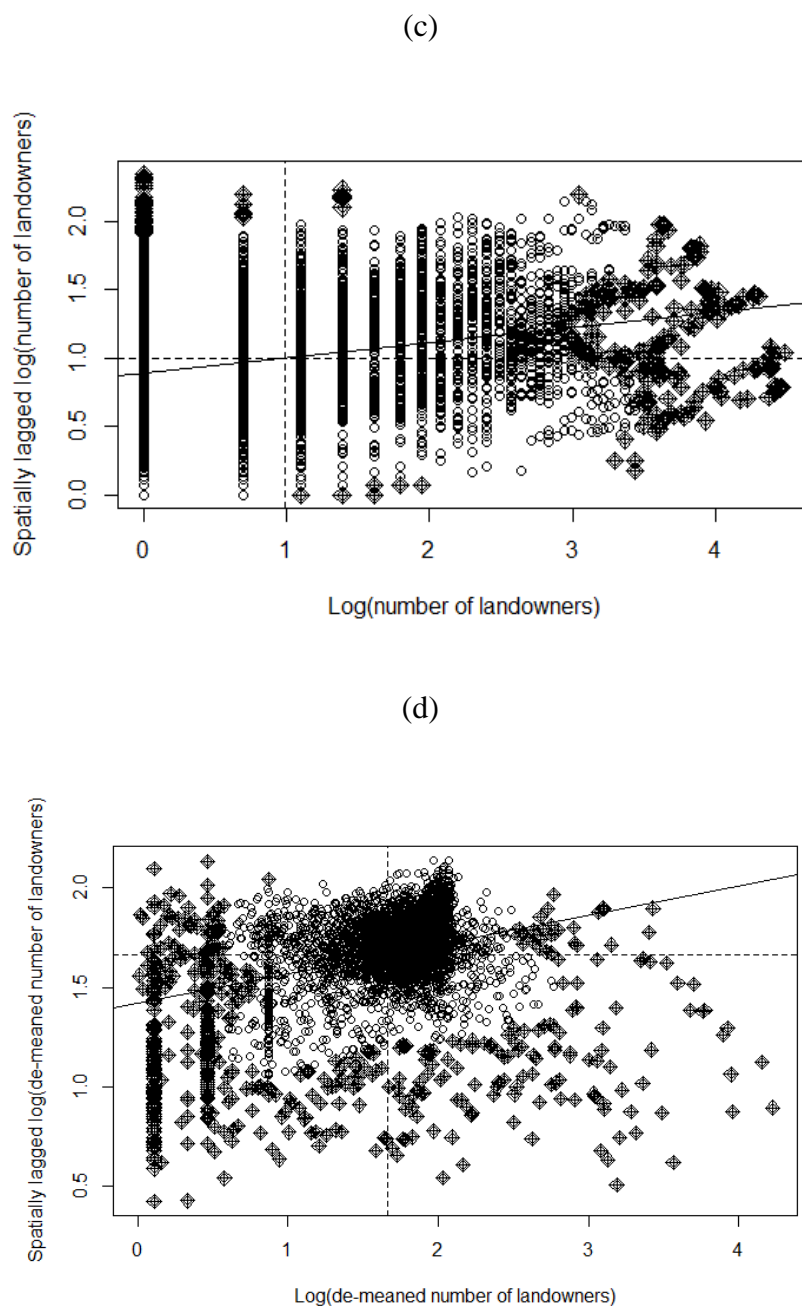


Figure B1

Panel (a): Moran scatterplot of wetland creation and restoration area. Panel (b): Moran scatterplot of municipality and time mean differenced wetland creation and restoration area. Panel (c): Moran scatterplot of number of landowners. Panel (d): Moran scatterplot of municipality and time mean differenced number of landowners.

B. Tables

Table C1

Summary statistics.

Variable	Mean	Std Dev	Min	Max
Wetland area in ha	34.05	48.84	0	363.70
Number of landowners	4.64	9.41	0	88
Hunting permits	934.52	813.44	103	8020
Members of Nature Conservation Society	734.77	1506.20	19	23789
Agri-environmental support for nitrogen leakage reduction in SEK 1000	785.18	1221	0	10624
Winter wheat in kg/ha	5390	1020	3135	9049
Arable land in ha	9132.50	10355	0	86738
Grazing land in ha	1609.43	2881.30	1	34183
Number of large farms (with >100 ha land)	27.62	32.35	1	278
Share of leased agricultural land	0.20	0.07	0.07	0.4

Table C2

Full estimation result of the effect of neighbors' current wetland creation and restoration adoption on own adoption. Spatial autoregressive (SAR) model.

Dependent variable:	Wetland area	Number of landowners
	(1)	(2)
Spatial lagged dependent variable (ρ)	0.514*** (0.038)	0.645*** (0.033)
Main result		
Hunting permits	0.20 (0.322)	0.032 (0.166)
Members of Nature Conservation Society	-0.177 (0.152)	-0.05 (0.074)
Agri-environmental support for nitrogen leakage reduction	0.025*** (0.008)	0.014*** (0.004)
Winter wheat	-0.021 (0.014)	-0.008 (0.008)
Arable land	-0.037 (0.062)	-0.016 (0.041)
Grazing land	0.224*** (0.034)	0.138*** (0.022)
Large farms	0.124*** (0.021)	0.082*** (0.011)
Share of leased agricultural land	-0.45 (0.802)	-0.296 (0.359)
Direct effects		
Hunting permits	0.219 (0.342)	0.04 (0.181)
Members of Nature Conservation Society	-0.189 (0.152)	-0.057 (0.076)
Agri-environmental support for nitrogen leakage reduction	0.027*** (0.008)	0.015*** (0.004)

Winter wheat	-0.021 (0.013)	-0.008 (0.009)
Arable land	-0.037 (0.061)	-0.017 (0.042)
Grazing land	0.233*** (0.034)	0.148*** (0.023)
Large farms	0.127*** (0.023)	0.087*** (0.012)
Share of leased agricultural land	-0.495 (0.802)	-0.328 (0.371)
Indirect effects		
Hunting permits	0.212 (0.347)	0.063 (0.310)
Members of Nature Conservation Society	-0.185 (0.151)	-0.096 (0.131)
Agri-environmental support for nitrogen leakage reduction	0.027*** (0.008)	0.026*** (0.008)
Winter wheat	-0.021 (0.014)	-0.013 (0.015)
Arable land	-0.038 (0.063)	-0.028 (0.071)
Grazing land	0.232*** (0.037)	0.246*** (0.038)
Large farms	0.128*** (0.028)	0.146*** (0.026)
Share of leased agricultural land	-0.498 (0.827)	-0.557 (0.646)
Total effects		
Hunting permits	0.431 (0.686)	0.103 (0.490)
Members of Nature Conservation Society	-0.374 (0.301)	-0.152 (0.206)

Agri-environmental support for nitrogen leakage reduction	0.054*** (0.015)	0.041*** (0.012)
Winter wheat	-0.043 (0.027)	-0.022 (0.023)
Arable land	-0.075 (0.124)	-0.045 (0.112)
Grazing land	0.465*** (0.063)	0.394*** (0.055)
Large farms	0.255*** (0.048)	0.234*** (0.035)
Share of leased agricultural land	-0.992 (1.624)	-0.885 (1.013)
Municipality fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
Observations	5220	5220

Note: Robust standard errors in parenthesis. * p<0.1, ** p<0.05, *** p<0.01.

Table C3

Estimation result of the effect of neighbors' current wetland creation and restoration adoption on own adoption by using the inverse distance spatial weight matrix. Spatial autoregressive (SAR) model.

Dependent variable:	Wetland area	Number of landowners	Wetland area	Number of landowners
	(1)	(2)	(3)	(4)
Spatial lagged dependent variable (ρ)	0.939*** (0.009)	0.966*** (0.003)	0.881*** (0.026)	0.948*** (0.007)
Main result				
Hunting permits			0.361 (0.339)	0.122 (0.184)
Members of Nature Conservation Society			-0.233 (0.155)	-0.116 (0.085)
Agri-environmental support for nitrogen leakage reduction			0.035*** (0.008)	0.023*** (0.005)
Winter wheat			-0.027** (0.013)	-0.013 (0.009)
Arable land			-0.025 (0.078)	-0.002 (0.056)
Grazing land			0.255*** (0.034)	0.185*** (0.022)
Large farms			0.146*** (0.022)	0.097*** (0.012)
Share of leased agricultural land			-0.113 (0.834)	-0.209 (0.423)
Direct effects				
Hunting permits			0.384 (0.358)	0.137 (0.202)
Members of Nature Conservation Society			-0.246 (0.154)	-0.127 (0.087)

Agri-environmental support for nitrogen leakage reduction	0.037*** (0.008)	0.025*** (0.005)
Winter wheat	-0.028** (0.013)	-0.013 (0.009)
Arable land	-0.025 (0.078)	-0.001 (0.057)
Grazing land	0.264*** (0.035)	0.199*** (0.023)
Large farms	0.150*** (0.024)	0.103*** (0.013)
Share of leased agricultural land	-0.141 (0.843)	-0.234 (0.445)
Indirect effects		
Hunting permits	2.94 (3.095)	2.402 (3.633)
Members of Nature Conservation Society	-1.841 (1.302)	-2.247 (1.619)
Agri-environmental support for nitrogen leakage reduction	0.288** (0.117)	0.444*** (0.125)
Winter wheat	-0.210* (0.121)	-0.235 (0.160)
Arable land	-0.172 (0.625)	-0.011 (1.017)
Grazing land	2.019*** (0.596)	3.472*** (0.603)
Large farms	1.151*** (0.382)	1.801*** (0.339)
Share of leased agricultural land	-1.082 (6.781)	-4.148 (7.967)
Total effects		
Hunting permits	3.324	2.539

			(3.423)	(3.832)
Members of Nature Conservation Society			-2.088	-2.374
			(1.437)	(1.703)
Agri-environmental support for nitrogen leakage reduction			0.325***	0.469***
			(0.122)	(0.129)
Winter wheat			-0.237*	-0.249
			(0.133)	(0.168)
Arable land			-0.197	-0.012
			(0.701)	(1.073)
Grazing land			2.284***	3.670***
			(0.607)	(0.616)
Large farms			1.300***	1.904***
			(0.394)	(0.347)
Share of leased agricultural land			-1.223	-4.382
			(7.600)	(8.407)
Municipality fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Observations	5220	5220	5220	5220

Note: Robust standard errors in parenthesis. * p<0.1, ** p<0.05, *** p<0.01.

Table C4

Spatial error model (SAC) estimation result of the effect of neighbors' current wetland creation and restoration adoption on own adoption.

Dependent variable:	Wetland area	Number of landowners
	(1)	(2)
Spatial lagged dependent variable (ρ)	0.461*** (0.164)	0.458 (0.310)
Spatial error (Λ)	0.092 (0.237)	0.341 (0.381)
Main result		
Hunting permits	0.239 (0.359)	0.117 (0.215)
Members of Nature Conservation Society	-0.177 (0.152)	-0.043 (0.077)
Agri-environmental support for nitrogen leakage reduction	0.028** (0.012)	0.023 (0.015)
Winter wheat	-0.02 (0.014)	-0.004 (0.011)
Arable land	-0.049 (0.071)	-0.042 (0.047)
Grazing land	0.234*** (0.051)	0.158*** (0.035)
Large farms	0.125*** (0.023)	0.089*** (0.015)
Share of leased agricultural land	-0.24 (0.856)	-0.161 (0.445)
Direct effects		
Hunting permits	0.256 (0.380)	0.089 (0.808)
Members of Nature Conservation Society	-0.19 (0.152)	-0.051 (0.106)

Agri-environmental support for nitrogen leakage reduction	0.030*** (0.011)	0.024 (0.019)
Winter wheat	-0.021 (0.014)	-0.006 (0.039)
Arable land	-0.052 (0.068)	-0.044 (0.052)
Grazing land	0.246*** (0.049)	0.172 (0.134)
Large farms	0.129*** (0.024)	0.097 (0.104)
Share of leased agricultural land	-0.291 (0.854)	-0.221 (0.986)
Indirect effects		
Hunting permits	0.147 (0.990)	-0.048 (4.476)
Members of Nature Conservation Society	-0.206 (0.816)	-0.006 (2.512)
Agri-environmental support for nitrogen leakage reduction	0.024 (0.016)	0.02 (0.055)
Winter wheat	-0.021 (0.042)	0.012 (0.359)
Arable land	-0.019 (0.261)	-0.052 (0.384)
Grazing land	0.231 (0.409)	0.091 (1.767)
Large farms	0.134 (0.291)	0.032 (1.606)
Share of leased agricultural land	-0.377 (3.063)	-0.043 (11.609)
Total effects		
Hunting permits	0.403 (1.207)	0.042 (4.440)

Members of Nature Conservation Society	-0.396 (0.871)	-0.057 (2.528)
Agri-environmental support for nitrogen leakage reduction	0.054*** (0.019)	0.044 (0.053)
Winter wheat	-0.042 (0.050)	0.007 (0.361)
Arable land	-0.071 (0.291)	-0.096 (0.394)
Grazing land	0.477 (0.405)	0.263 (1.789)
Large farms	0.263 (0.295)	0.129 (1.615)
Share of leased agricultural land	-0.667 (3.466)	-0.264 (11.684)
Municipality fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
Observations	5220	5220

Note: Robust standard errors in parenthesis. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table C5

Full estimation result of the effect of neighbors' time lagged wetland creation and restoration adoption on own adoption. Dynamic spatial autoregressive (DSAR) model.

Dependent variable:	Wetland area	Number of landowners
	(3)	(4)
Spatial lagged dependent variable (ρ)	0.166*** (0.029)	0.297*** (0.033)
Spatial and time lagged dependent variable (ψ)	0.407*** (0.044)	0.389*** (0.038)
Main result		
Hunting permits	0.282 (0.303)	0.092 (0.154)
Members of Nature Conservation Society	-0.122 (0.149)	-0.017 (0.067)
Agri-environmental support for nitrogen leakage reduction	0.007 (0.008)	0.005 (0.004)
Winter wheat	-0.007 (0.014)	0.001 (0.008)
Arable land	-0.02 (0.071)	-0.006 (0.044)
Grazing land	0.138*** (0.034)	0.083*** (0.019)
Large farms	0.089*** (0.020)	0.065*** (0.010)
Share of leased agricultural land	-0.596 (0.865)	-0.381 (0.368)
Short-run direct effects		
Hunting permits	0.269 (0.294)	0.086 (0.150)
Members of Nature Conservation Society	-0.106	-0.01

	(0.143)	(0.065)
Agri-environmental support for nitrogen leakage reduction	0.007	0.005
	(0.008)	(0.004)
Winter wheat	-0.006	0.001
	(0.014)	(0.008)
Arable land	-0.016	-0.004
	(0.070)	(0.044)
Grazing land	0.137***	0.083***
	(0.035)	(0.020)
Large farms	0.089***	0.065***
	(0.020)	(0.010)
Share of leased agricultural land	-0.508	-0.349
	(0.847)	(0.363)
Short-run indirect effects		
Hunting permits	0.053	0.036
	(0.059)	(0.063)
Members of Nature Conservation Society	-0.021	-0.004
	(0.030)	(0.027)
Agri-environmental support for nitrogen leakage reduction	0.001	0.002
	(0.002)	(0.002)
Winter wheat	-0.001	0
	(0.003)	(0.003)
Arable land	-0.003	-0.002
	(0.014)	(0.019)
Grazing land	0.027***	0.034***
	(0.009)	(0.009)
Large farms	0.018***	0.027***
	(0.006)	(0.006)
Share of leased agricultural land	-0.104	-0.148
	(0.174)	(0.157)
Short-run total effects		

Hunting permits	0.322 (0.352)	0.121 (0.212)
Members of Nature Conservation Society	-0.128 (0.172)	-0.014 (0.092)
Agri-environmental support for nitrogen leakage reduction	0.009 (0.009)	0.008 (0.006)
Winter wheat	-0.008 (0.017)	0.001 (0.012)
Arable land	-0.019 (0.084)	-0.006 (0.062)
Grazing land	0.164*** (0.041)	0.118*** (0.028)
Large farms	0.107*** (0.024)	0.093*** (0.015)
Share of leased agricultural land	-0.612 (1.017)	-0.497 (0.518)
Long-run direct effects		
Hunting permits	0.28 (0.306)	0.092 (0.160)
Members of Nature Conservation Society	-0.111 (0.149)	-0.011 (0.069)
Agri-environmental support for nitrogen leakage reduction	0.007 (0.008)	0.006 (0.004)
Winter wheat	-0.007 (0.014)	0.001 (0.009)
Arable land	-0.017 (0.073)	-0.005 (0.047)
Grazing land	0.143*** (0.036)	0.089*** (0.021)
Large farms	0.093*** (0.020)	0.070*** (0.010)

Share of leased agricultural land	-0.529 (0.882)	-0.372 (0.388)
Long-run indirect effects		
Hunting permits	0.352 (0.386)	0.183 (0.322)
Members of Nature Conservation Society	-0.141 (0.192)	-0.023 (0.141)
Agri-environmental support for nitrogen leakage reduction	0.009 (0.010)	0.012 (0.009)
Winter wheat	-0.009 (0.018)	0.001 (0.018)
Arable land	-0.021 (0.093)	-0.009 (0.096)
Grazing land	0.179*** (0.049)	0.176*** (0.047)
Large farms	0.118*** (0.031)	0.140*** (0.033)
Share of leased agricultural land	-0.68 (1.127)	-0.761 (0.811)
Long-run total effects		
Hunting permits	0.632 (0.690)	0.275 (0.480)
Members of Nature Conservation Society	-0.251 (0.340)	-0.033 (0.209)
Agri-environmental support for nitrogen leakage reduction	0.017 (0.018)	0.017 (0.013)
Winter wheat	-0.015 (0.033)	0.002 (0.027)
Arable land	-0.038 (0.165)	-0.014 (0.142)
Grazing land	0.322***	0.265***

	(0.083)	(0.065)
Large farms	0.211***	0.210***
	(0.050)	(0.041)
Share of leased agricultural land	-1.209	-1.133
	(2.004)	(1.193)
Municipality fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
Observations	4930	4930

Note: Robust standard errors in parenthesis. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table C6

Results of the difference in adoption between neighbors and non-neighbors of the Southern Plains of Götaland using clustered standard errors.

Dependent variable:	Wetland area	Number of landowners	Wetland area	Number of landowners
	(1)	(2)	(3)	(4)
<i>Neighbor × post</i>	0.251	0.230	0.171	0.167
	(0.172; 0.165)	(0.087; 0.019)	(0.172; 0.338)	(0.08; 0.056)
	[0.324; 0.45]	[0.089; 0.020]	[0.349; 0.632]	[0.094; 0.098]
Hunting permits			0.188	0.046
			(0.342; 0.59)	(0.215; 0.834)
			[0.583; 0.751]	[0.39; 0.908]
Members of Nature Conservation Society			-0.213	-0.158
			(0.292; 0.477)	(0.171; 0.37)
			[0.329; 0.528]	[0.19; 0.42]
Agri-environmental support for nitrogen leakage reduction			0.015	0.011
			(0.012; 0.237)	(0.01; 0.268)
			[0.016; 0.363]	[0.012; 0.362]
Winter wheat			-0.117	-0.012
			(0.238; 0.629)	(0.234; 0.96)
			[0.297; 0.699]	[0.325; 0.971]
Arable land			-0.095	-0.05
			(0.061; 0.142)	(0.05; 0.331)
			[0.119; 0.438]	[0.1; 0.627]
Grazing land			0.304	0.245
			(0.057; 0.00)	(0.044; 0.00)
			[0.077; 0.001]	[0.061; 0.001]
Large farms			0.19	0.115
			(0.021; 0.00)	(0.017; 0.00)
			[0.021; 0.00]	[0.018; 0.00]
Share of leased agricultural land			-0.872	-0.967

			(0.776; 0.279)	(0.536; 0.091)
			[0.98; 0.388]	[0.691; 0.182]
Municipality fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Observations	3852	3852	3852	3852

Note: County-level clustered standard errors in parenthesis followed by p-values. Bootstrap county-level clustered standard errors followed by p-values in brackets.

Table C7

Adoption vs disadoption.

Dependent variable:	Wetland area	Number of landowners	Wetland area	Number of exiting landowners	Disadopted wetland area
	(1)	(2)	(3)	(4)	(5)
<i>Neighbor × post</i>	0.054 (0.066)	0.114*** (0.042)	0.116*** (0.038)	0.026 (0.039)	0.102 (0.075)
Hunting permits	0.485 (0.347)	0.057 (0.177)	0.3 (0.335)	-0.177 (0.134)	-0.193 (0.287)
Members of Nature Conservation Society	-0.539** (0.223)	-0.391*** (0.138)	0.061 (0.070)	-0.255*** (0.082)	-0.469*** (0.147)
Agri-environmental support for nitrogen leakage reduction	0.045*** (0.009)	0.030*** (0.005)	0.005 (0.003)	-0.002 (0.004)	0.005 (0.008)
Winter wheat	0.608*** (0.214)	0.389*** (0.126)	-0.217 (0.175)	-0.217*** (0.082)	-0.281* (0.153)
Arable land	-0.112*** (0.042)	-0.060* (0.033)	0.013* (0.006)	0.007 (0.014)	0.01 (0.028)
Grazing land	0.194*** (0.031)	0.185*** (0.020)	0.004 (0.018)	0.113*** (0.011)	0.213*** (0.020)
Large farms	0.359*** (0.032)	0.207*** (0.020)	-0.006 (0.006)	-0.050*** (0.011)	-0.059*** (0.020)
Share of leased agricultural land	-0.012 (0.836)	-0.618 (0.436)	-0.259 (0.310)	-0.359 (0.276)	-0.335 (0.576)
Municipality fixed effects	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	2996	2996	12953	3852	3852

Note: Columns (1) and (2) report estimation of Equation (6) using the sample period prior to 2014. Columns (3) and (4) show estimation results of Equation (6) for number of exiting landowners and disadopted using the full sample. Robust standard errors in parenthesis. * p<0.1, ** p<0.05, *** p<0.01. All variables are estimated in log form.