**Supplementary Appendix**

The figures and tables in this section are supplementary to the main article.

Chart, line chart

Description automatically generated

(*a*)

Chart, line chart

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(*b*)

**Fig A1**. Distribution of (*a*) payments and acreage, and (*b*) contract allocations in Environmental Quality Incentives Program (EQIP) and Conservation Stewardship Program (CSP) in Louisiana, 1997-2021



**Fig A2**. Map of Louisiana showing total working lands contract allocations by county (parish) during 1997-2019

Chart, scatter chart

Description automatically generated

**Fig A3.** Changes in payment obligations per acre in working lands programs from 1997 to 2019

Graphical user interface, chart

Description automatically generated

(*a*)

Chart, line chart

Description automatically generated

(*b*)

**Fig A4**. Empirical cumulative distribution function of *(a)* contract size (acres) and *(b)* total payment obligations ($/contract) under different contract categories.

Chart, scatter chart

Description automatically generated

*(a)*

Chart, scatter chart

Description automatically generated

*(b)*

**Fig A5**. Binned scatterplot (panel *a*) and scatter plot (panel *b*) showing the relationship between loss-risk ratio and contract allocations. The total contract sign-up is higher in the areas with higher loss-risk ratio (*ρ* = 0.153, *p*-value = 0.000).

**Table A1.** Effect of payment obligations on EQIP and CSP programs

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Variables |  | Overall non-compliance rate | | | | | |  |
| EQIP | | |  |  |  | CSP |  |
| (1)  1W-FE | | (2)  2W-FE | (3)  3W-FE |  | (1)  1W-FE | (2)  2W-FE | (3)  3W-FE |
| *ln*(Payment obligations ($/acre)) | -0.059\*\*\* | | -0.056\*\*\* | -0.056\*\*\* |  | -0.048 | -0.054\*\*\* | -0.106\*\*\* |
|  | (0.004) | | (0.004) | (0.004) |  | (0.036) | (0.017) | (0.037) |
| *ln*(Contract acres) | -0.044\*\* | | -0.053\*\*\* | -0.056\*\*\* |  | -0.020 | -0.098\*\* | -0.087\*\* |
|  | (0.012) | | (0.012) | (0.014) |  | (0.073) | (0.047) | (0.041) |
| Controls | Yes | | Yes | Yes |  | Yes | Yes | Yes |
| County FE | Yes | | Yes | Yes |  | Yes | Yes | Yes |
| Year FE | No | | Yes | Yes |  | No | Yes | Yes |
| Region × Year FE | No | | No | Yes |  | No | No | Yes |
| Adjusted R2 | 0.44 | | 0.50 | 0.50 |  | 0.54 | 0.89 | 0.88 |
| *p*-value | 0.000 | | 0.000 | 0.000 |  | 0.000 | 0.000 | 0.000 |
| Observations | 795 | | 795 | 791 |  | 109 | 109 | 101 |
| **Notes:** Cluster-robust standard errors in parentheses. EQIP = Environmental Quality Incentives Program. CSP = Conservation Stewardship Program. 1W-FE = One-way Fixed Effects. 2W-FE = Two-way Fixed Effects. 3W-FE = 3-way Fixed Effects. *ln* = Natural logarithm. \* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01. | | | | | | | | |

**Table A2.** Robustness checks with historical payments and different forms of fixed effects

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Variables | 3-way FE | | | Years < 2014 | | | 2-year MA | | | 3-year MA | | |
| (1) | (2) | (3) | (1) | (2) | (3) | (1) | (2) | (3) | (1) | (2) | (3) |
| Non-compliance rate | Cancellation rate | Termination rate | Non-compliance rate | Cancellation rate | Termination rate | Non-compliance rate | Cancellation rate | Termination rate | Non-compliance rate | Cancellation rate | Termination rate |
| *ln*(Payment obligations | -0.073\*\*\* | -0.053\*\*\* | -0.019\*\*\* | -0.078\*\*\* | -0.060\*\*\* | -0.018\*\* | -0.065\*\*\* | -0.045\*\*\* | -0.021\*\*\* | -0.049\*\*\* | -0.033\*\* | -0.015\*\* |
| ($/acre)) | (0.004) | (0.006) | (0.007) | (0.005) | (0.007) | (0.008) | (0.009) | (0.010) | (0.007) | (0.010) | (0.014) | (0.006) |
| *ln*(Contract acres) | -0.054\*\*\* | -0.020 | -0.034\*\*\* | -0.057\*\*\* | -0.026\* | -0.031\*\* | -0.037\*\* | -0.011 | -0.026\* | -0.050\*\* | -0.016 | -0.034\* |
|  | (0.010) | (0.012) | (0.012) | (0.013) | (0.013) | (0.014) | (0.015) | (0.015) | (0.014) | (0.024) | (0.028) | (0.018) |
| Loss ratio | -0.001 | 0.001 | -0.002 | -0.001 | 0.003 | -0.004 | -0.011 | -0.002 | -0.009 | -0.012 | -0.001 | -0.012\* |
|  | (0.005) | (0.004) | (0.003) | (0.005) | (0.004) | (0.003) | (0.010) | (0.007) | (0.006) | (0.014) | (0.011) | (0.007) |
| *ln*(Land value ($/acre)) | 0.062 | 0.108\*\* | -0.047 | -0.072 | 0.020 | -0.092 | 0.021 | 0.092 | -0.070\* | 0.072 | 0.114 | -0.042 |
|  | (0.047) | (0.054) | (0.039) | (0.057) | (0.059) | (0.056) | (0.061) | (0.055) | (0.038) | (0.076) | (0.073) | (0.041) |
| *ln*(Farm earnings ($)) | 0.011 | 0.007 | 0.004 | 0.016 | 0.015 | 0.002 | -0.003 | -0.007 | 0.004 | -0.010 | -0.008 | -0.002 |
|  | (0.011) | (0.011) | (0.008) | (0.016) | (0.013) | (0.014) | (0.014) | (0.014) | (0.010) | (0.023) | (0.022) | (0.012) |
| Expenditure-income ratio | 0.053 | 0.041 | 0.013 | 0.030 | 0.028 | 0.003 | 0.063 | 0.052 | 0.011 | 0.021 | 0.056 | -0.035 |
|  | (0.052) | (0.052) | (0.041) | (0.073) | (0.057) | (0.058) | (0.065) | (0.065) | (0.045) | (0.086) | (0.089) | (0.047) |
| *ln*(Heating degree days | -0.042 | -0.036 | -0.007 | -0.039 | -0.011 | -0.028 | -0.095\*\* | -0.047 | -0.048\* | -0.111\* | -0.054 | -0.057\* |
| (>32 °C)) | (0.043) | (0.048) | (0.030) | (0.026) | (0.024) | (0.019) | (0.037) | (0.037) | (0.028) | (0.058) | (0.055) | (0.029) |
| Debt-income ratio | 0.020 | 0.018 | 0.002 | -0.009 | -0.003 | -0.006 | 0.027 | 0.027 | -0.001 | 0.027 | 0.035 | -0.008 |
|  | (0.030) | (0.022) | (0.019) | (0.037) | (0.019) | (0.033) | (0.032) | (0.026) | (0.017) | (0.035) | (0.030) | (0.015) |
| *ln*(CRP payment ($/acre)) | 0.004 | 0.002 | 0.002 | 0.008\*\* | 0.003 | 0.005\*\*\* | 0.004 | 0.001 | 0.003\*\* | 0.004 | 0.002 | 0.002 |
|  | (0.003) | (0.002) | (0.001) | (0.004) | (0.003) | (0.002) | (0.003) | (0.002) | (0.001) | (0.003) | (0.002) | (0.002) |
| County FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Region × Year FE | Yes | Yes | Yes | No | No | No | No | No | No | No | No | No |
| *R*2 | 0.48 | 0.42 | 0.38 | 0.48 | 0.48 | 0.30 | 0.32 | 0.28 | 0.28 | 0.27 | 0.23 | 0.29 |
| *p*-value | 0.000 | 0.000 | 0.129 | 0.000 | 0.000 | 0.018 | 0.000 | 0.002 | 0.027 | 0.000 | 0.075 | 0.035 |
| No. of counties | 59 | 59 | 59 | 59 | 59 | 59 | 59 | 59 | 59 | 59 | 59 | 59 |
| *N* | 1139 | 1139 | 1139 | 868 | 868 | 868 | 1034 | 1034 | 1034 | 943 | 943 | 943 |
| **Notes:** Cluster-robust standard errors in parentheses. FE = Fixed Effects; CRP = Conservation Reserve Program; MA = Moving Average. *ln*= Natural logarithm. Results from 2-way FE in Table 3 and 3-way FE here appear similar due to rounding off. Loss ratio is the ratio of indemnity paid to the premium collected. \* *p* < 0.1, \*\* *p* < 0.05, \*\*\* *p* < 0.01. | | | | | | | | | | | | |

**Table A3.** Results from alternative specifications of spatial panel data model

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Variables | Overall non-compliance rate | | Cancellation rate | | Termination rate | |
| (1)  SEM | (2)  SAC | (1)  SEM | (2)  SAC | (1)  SEM | (2)  SAC |
| *ln*(Payment obligations ($/acre)) | -0.070\*\*\* | -0.070\*\*\* | -0.052\*\*\* | -0.052\*\*\* | -0.018\*\*\* | -0.017\*\*\* |
|  | (0.004) | (0.004) | (0.006) | (0.006) | (0.006) | (0.005) |
| *ln*(Contract acres) | -0.041\*\*\* | -0.041\*\*\* | -0.011 | -0.011 | -0.030\*\*\* | -0.025\*\*\* |
|  | (0.008) | (0.008) | (0.010) | (0.010) | (0.010) | (0.009) |
| Loss ratio | -0.006 | -0.006 | -0.001 | -0.001 | -0.005 | -0.005\* |
|  | (0.005) | (0.005) | (0.004) | (0.004) | (0.003) | (0.003) |
| *ln*(Land value ($/acre)) | 0.031 | 0.032 | 0.105\*\* | 0.100\*\* | -0.066\*\* | -0.064\*\* |
|  | (0.040) | (0.041) | (0.045) | (0.046) | (0.030) | (0.026) |
| *ln*(Farm earnings ($)) | 0.009 | 0.008 | 0.002 | 0.002 | 0.007 | 0.007\* |
|  | (0.009) | (0.009) | (0.008) | (0.008) | (0.004) | (0.004) |
| Expenditure-income ratio | 0.017 | 0.018 | -0.004 | -0.005 | 0.026 | 0.015 |
|  | (0.048) | (0.049) | (0.039) | (0.040) | (0.016) | (0.015) |
| *ln*(Heating degree days (>32 °C)) | -0.047\* | -0.049 | -0.027 | -0.030 | -0.020 | -0.014 |
|  | (0.027) | (0.030) | (0.026) | (0.032) | (0.020) | (0.013) |
| Debt-income ratio | 0.033 | 0.032 | 0.031 | 0.032 | 0.001 | 0.002 |
|  | (0.029) | (0.028) | (0.021) | (0.021) | (0.019) | (0.018) |
| *ln*(CRP payment ($/acre)) | 0.005\* | 0.004 | 0.001 | 0.001 | 0.003\*\* | 0.004\*\*\* |
|  | (0.003) | (0.003) | (0.002) | (0.002) | (0.001) | (0.001) |
| Spatial FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Time FE | Yes | Yes | Yes | Yes | Yes | Yes |
| *ρ* | - | -0.120 | - | -0.189 | - | 0.446\*\*\* |
|  |  | (0.178) |  | (0.184) |  | (0.129) |
| *λ* | 0.061 | 0.175 | -0.006 | 0.174 | 0.086 | -0.452\*\*\* |
|  | (0.043) | (0.176) | (0.048) | (0.178) | (0.059) | (0.165) |
| *p*-value | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| *N*Ϯ | 1357 | 1357 | 1357 | 1357 | 1357 | 1357 |
| **Notes**: Cluster-robust standard errors in parentheses. SEM = Spatial Error Model; SAC = Spatial Autoregressive Combined Model (also known as SARAR spatial autoregressive model with autoregressive disturbances or Kelejian-Prucha model); FE = Fixed Effects; *ln* = Natural logarithm; CRP = Conservation Reserve Program.  Ϯ The number of observations is higher in spatial panel models because they require balanced panel data for which we use multiple imputation to convert our unbalanced dataset into balanced one using the multiple imputation procedure suggested by Belotti et al. (2017). | | | | | | |

**Table A4.** Results from the linear two-way fixed-effects models with full data from 1997-2019

|  |  |  |  |
| --- | --- | --- | --- |
| Variables | Overall non-compliance rate | Cancellation rate | Termination rate |
| *ln*(Payment obligations ($/acre)) | -0.070\*\*\* | -0.054\*\*\* | -0.015\*\*\* |
|  | (0.004) | (0.005) | (0.006) |
| *ln*(Contract acres) | -0.047\*\*\* | -0.019\* | -0.028\*\* |
|  | (0.008) | (0.011) | (0.011) |
| Loss ratio | -0.004 | 0.001 | -0.005 |
|  | (0.006) | (0.004) | (0.003) |
| *ln*(Land value ($/acre)) | 0.003 | 0.100\*\* | -0.096\*\* |
|  | (0.040) | (0.044) | (0.036) |
| *ln*(Farm earnings ($)) | 0.014 | 0.009 | 0.005 |
|  | (0.010) | (0.010) | (0.008) |
| Expenditure-income ratio | 0.069 | 0.048 | 0.021 |
|  | (0.043) | (0.044) | (0.038) |
| *ln*(Heating degree days (>32 °C)) | -0.052\*\* | -0.022 | -0.029 |
|  | (0.025) | (0.026) | (0.018) |
| Debt-income ratio | 0.029 | 0.022 | 0.007 |
|  | (0.030) | (0.021) | (0.021) |
| *ln*(CRP payment ($/acre)) | 0.007\*\* | 0.003 | 0.004\*\*\* |
|  | (0.003) | (0.003) | (0.001) |
| County FE | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes |
| R2 | 0.46 | 0.46 | 0.28 |
| *p*-value | 0.000 | 0.000 | 0.004 |
| No. of counties | 63 | 63 | 63 |
| *N* | 1156 | 1156 | 1156 |
| **Notes:** Cluster-robust standard errors in parentheses. CRP = Conservation Reserve Program. *ln* = Natural logarithm. \* *p* < 0.1, \*\* *p* < 0.05, \*\*\* *p* < 0.01. | | | |