

**Appendix**

Table A1. Descriptive statistics of no-CRP, partial, and whole farms

	No-CRP	Partial	Whole	Wald Chi-square
Output price index (\$/bu)	4.89 (1.21)	4.65 (1.12)	4.74 (1.15)	914.56** (0.00)
Fertilizer price (\$/ton)	260.59 (91.06)	245.65 (82.04)	256.09 (84.32)	665.25** (0.00)
Land rental price (\$/acre)	83.64 (44.59)	70.78 (43.78)	58.92 (41.73)	2686.19** (0.00)
Total land in farm (acre)	576.51 (760.78)	717.15 (996.99)	124.69 (174.63)	18651.48** (0.00)
Cropland cultivated (acre)	500.48 (658.43)	510.01 (773.95)	—	3.98** (0.04)
CRP land (acre)	—	74.00 (143.94)	124.69 (174.63)	393.42** (0.00)
CRP payment (\$/acre)	—	87.51 (134.52)	68.71 (64.39)	297.27 (0.00)
Crop production (bu)	32606.61 (52724.56)	32136.17 (54058.45)	178.80 (1974.96)	1.73 (0.18)
Total product produced	33239.57 (53428.63)	32762.24 (55041.83)	237.95 (2273.30)	1.73 (0.18)
Crop production per acre (bu)	60.92 (47.97)	58.17 (28.88)	—	92.63** (0.00)
Operator's age	54.07 (13.03)	56.92 (12.76)	61.08 (14.58)	1724.81** (0.00)
Days worked off farm	2.79 (1.80)	2.61 (1.77)	2.95 (1.87)	319.26** (0.00)
Growing degree days	1997.87 (243.78)	2013.91 (269.05)	2025.68 (312.46)	106.61** (0.00)
Soil index	2.35 (0.33)	2.45 (0.35)	2.56 (0.34)	2514.39** (0.00)
# Observations	39,420	50,828	4,979	
% of Observations	41.4	53.3	5.2	

Notes: (1) The Wald Chi-square statistics reported in the last column are for the null hypothesis that the variable means are equal across groups. (2) Standard deviations and *p*-values are in the parentheses in the first three and the last column, respectively. (3) Output price index is the weighted average of corn and soybean prices (\$/bu) at the state-level with the weights being the shares of the harvested acres for individual crops. (4) Days worked off farm is a categorical variable ranging from 1 to 5: 1 for 0, 2 for 1-49, 3 for 50-99, 4 for 100-199 and 5 for 200 or more days. (5) The superscripts \* and \*\* denote statistical significance at 10% and 5% levels, respectively.

Table A2. Descriptive statistics of partial farms by Census year

	1997	2002	2007	Wald Chi-square
Output price index (\$/bu)	4.20 (0.36)	3.82 (0.24)	6.21 (0.36)	542358.82 <sup>**</sup> (0.00)
Fertilizer price (\$/ton)	219.65 (3.24)	179.77 (0.62)	363.09 (2.53)	82900000 <sup>**</sup> (0.00)
Land rental price (\$/acre)	44.02 (30.18)	64.01 (37.29)	96.10 (46.76)	11568.21 <sup>**</sup> (0.00)
Total land in farm (acre)	851.32 (975.85)	597.04 (909.32)	831.41 (1110.47)	771.61 <sup>**</sup> (0.00)
Cropland cultivated (acre)	566.52 (679.38)	398.56 (693.14)	653.41 (904.71)	1090.45 <sup>**</sup> (0.00)
CRP land (acre)	97.38 (170.68)	73.12 (133.53)	62.51 (142.09)	271.59 <sup>**</sup> (0.00)
CRP payment (\$/acre)	68.76 (32.42)	84.59 (183.74)	102.37 (50.16)	4162.81 <sup>**</sup> (0.00)
Crop produced	32282.38 (43495.28)	23916.59 (46056.57)	44923.97 (66888.91)	1279.35 <sup>**</sup> (0.00)
Total product produced	32796.37 (44217.24)	24521.31 (47147.57)	45645.10 (67907.35)	1245.37 <sup>**</sup> (0.00)
Crop produced per acre	52.12 (24.95)	54.97 (26.15)	65.72 (32.42)	1465.56 <sup>**</sup> (0.00)
Operator's age	53.68 (12.70)	56.88 (12.81)	58.76 (12.15)	954.26 <sup>**</sup> (0.00)
Days worked off farm	2.55 (1.74)	2.68 (1.81)	2.52 (1.71)	96.47 <sup>**</sup> (0.00)
Growing degree days	2055.01 (277.96)	1999.49 (277.28)	2013.90 (247.85)	265.15 <sup>**</sup> (0.00)
Soil index	2.47 (0.34)	2.48 (0.35)	2.39 (0.35)	688.74 <sup>**</sup> (0.00)
# Observations	8,971	25,542	16,315	

Notes: (1) The Wald Chi-square statistics reported in the last column are for the null hypothesis that the variable means are equal across groups. (2) Standard deviations and  $p$ -values are in the parentheses in the first three and the last column, respectively. (3) Output price index is the weighted average of corn and soybean prices (\$/bu) at the state-level with the weights being the shares of the harvested acres for individual crops. (4) Days worked off farm is a categorical variable ranging from 1 to 5: 1 for 0, 2 for 1-49, 3 for 50-99, 4 for 100-199 and 5 for 200 or more days. (5) The superscripts \* and \*\* denote statistical significance at 10% and 5% levels, respectively.

Table A3. Prices data used for simulation

	Baseline (2007)			2012		
	Output	Fertilizer	CRP payment	Output	Fertilizer	CRP payment
Illinois	6.07	364	103.36	10.20	487.76	120.40
Indiana	6.67	364	92.35	10.99	487.76	114.47
Iowa	6.25	364	106.16	10.09	487.76	131.57
Kansas	5.90	356	39.25	10.06	477.04	40.61
Michigan	6.14	364	75.89	9.40	487.76	90.53
Minnesota	6.21	364	60.28	10.03	487.76	69.85
Missouri	7.10	364	66.97	12.51	487.76	79.24
Nebraska	5.49	356	57.02	9.09	477.04	62.39
Ohio	6.88	364	102.06	11.37	487.76	122.06
Wisconsin	5.38	364	70.36	8.76	487.76	83.37

Notes: (1) Output price index is the weighted average of corn and soybean prices (\$/bu) at the state-level with the weights being the shares of the harvested acres for individual crops. (2) Fertilizer price of 2007 is the nitrogen price (\$/ton) at regional-level. Fertilizer price of 2012 is obtained by multiplying the national increase rate of 34% by the 2007 price. (3) CRP payment (\$/acre) is the average CRP rental rate at state-level, which is calculated by dividing total rental payment by total enrolled acres.

Table A4. Additional CRP acreage (in million acres)  
and costs (in \$ million) incurred by increased payment (in \$ million)

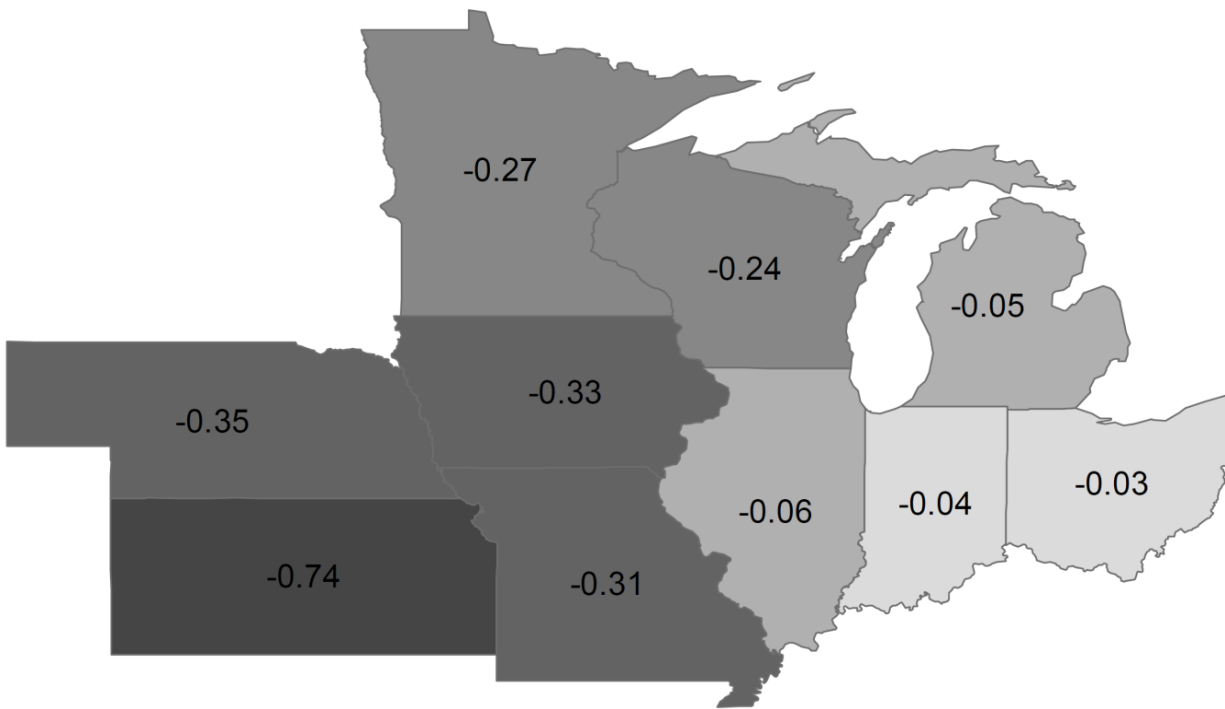
	10%		20%	
	Acreage	Cost	Acreage	Cost
Illinois	0.22	35.87	0.45	78.68
Indiana	0.04	7.04	0.10	18.12
Iowa	0.23	52.79	0.67	143.01
Kansas	0.14	14.83	0.28	30.81
Michigan	0.01	2.45	0.04	8.56
Minnesota	0.29	30.73	0.61	66.07
Missouri	0.25	28.33	0.50	60.72
Nebraska	0.14	14.97	0.28	31.67
Ohio	0.05	9.60	0.13	24.74
Wisconsin	0.11	13.48	0.24	30.61

Table A5. Changes in CRP acreage in percentage)

	Scenarios							Actual
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	Changes
Illinois	0.03	-0.02	-0.04	0.25	-0.09	-0.07	0.06	-0.01
Indiana	0.03	-0.02	-0.03	0.19	-0.07	-0.09	0.03	0.003
Iowa	0.05	-0.03	-0.08	0.29	-0.12	-0.17	0.03	0.03
Kansas	0.03	-0.02	-0.01	0.20	-0.07	-0.005	0.11	0.06
Michigan	0.04	-0.03	-0.05	0.21	-0.11	-0.10	0.03	0.03
Minnesota	0.04	-0.03	-0.04	0.24	-0.10	-0.07	0.05	0.03
Missouri	0.05	-0.03	-0.05	0.34	-0.11	-0.08	0.10	-0.004
Nebraska	0.03	-0.02	-0.03	0.23	-0.09	-0.03	0.08	0.04
Ohio	0.04	-0.03	-0.06	0.29	-0.12	-0.12	0.05	0.01
Wisconsin	0.07	-0.05	-0.07	0.34	-0.15	-0.12	0.07	0.03

Notes: (1) Scenario 1: a 10% increase in output price holding others at the 2007 levels, (2) Scenario 2: a 10% increase in input price holding others at the 2007 levels, (3) Scenario 3: a 10% increase in CRP payment holding others at the 2007 levels, (4) Scenario 4: increased output price to the level of 2012 holding others at the 2007 levels, (5) Scenario 5: increased input price to the level of 2012 holding others at the 2007 levels, (6) Scenario 6: increased CRP payment to the level of 2012 holding others at the 2007 levels, and (7) Scenario 7: increased output, input and CRP payment to the 2012 levels.

**Figure A1. Actual changes in CRP acreage between 2007 and 2012 (million acres)**



**Figure A2. Actual changes in CRP costs between 2007 and 2012 (\$ millions)**

