Agricultural rent in land use models: Comparison of frequently used proxies

D Supplementary materials

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D1 Models

The agr_rent is replaced by the different proxies for the agricultural rent tested. General formula:

\[ I(\ln(pst/oth)) = agr\_rent + forestry\_rent + density + revenues + Slope + TEXT \]

\[ I(\ln(nagr/oth)) = agr\_rent + forestry\_rent + density + revenues + Slope + TEXT \]

\[ I(\ln(for/oth)) = agr\_rent + forestry\_rent + density + revenues + Slope + TEXT \]

\[ I(\ln(urb/oth)) = agr\_rent + forestry\_rent + density + revenues + Slope + TEXT \]

| Model  | Model presentation | Interpretation                                        |
|--------|--------------------|-------------------------------------------------------|
| SEM    | \( y = X\beta + \varepsilon \) | Unobserved omitted variables follow a spatial pattern, data measurement errors |
|        | \( \varepsilon = \lambda W\varepsilon + u \) |                                                                     |
| SAR    | \( \tilde{y} = \rho W\tilde{y} + X\beta + \varepsilon \) | Land use share for one location is determined jointly with that of neighboring locations. |
| SLX    | \( \tilde{y} = X\beta + WX\gamma + \varepsilon \) | Land use share for one location is determined by the explanatory variables of neighboring locations. |
| SDM    | \( \tilde{y} = \rho W\tilde{y} + X\beta + WX\gamma + \varepsilon \) | A combination of SLX and SAR |
| SAC    | \( \tilde{y} = \rho W\tilde{y} + X\beta + \varepsilon \) | A combination of SEM and SAR |
|        | \( \varepsilon = \lambda W\varepsilon + u \) |                                                                     |
| SDEM   | \( \tilde{y} = X\beta + WX\gamma + \varepsilon \) | A combination of SEM and SLX |
|        | \( \varepsilon = \lambda W\varepsilon + u \) |                                                                     |
| GNS    | \( \tilde{y} = \rho W\tilde{y} + X\beta + WX\gamma + \varepsilon \) | A combination of SLX and SAC |
|        | \( \varepsilon = \lambda W\varepsilon + u \) |                                                                     |

Table D1: Summary table of the estimated spatial model specifications
## D1.1 Land shadow price

Table D2: Land shadow price, OLS

| Dependent variable: | ln(pst/oth) | ln(agr/oth) | ln(for/oth) | ln(urb/oth) |
|---------------------|-------------|-------------|-------------|-------------|
| Constant            | 1.711***    | 1.040***    | 1.990***    | −4.695***   |
|                     | (0.271)     | (0.210)     | (0.199)     | (0.209)     |
| Shadow price        | −2.645***   | 0.540***    | −0.670***   | 0.001       |
|                     | (0.229)     | (0.178)     | (0.168)     | (0.176)     |
| For revenue         | 0.015***    | 0.007***    | 0.008***    | 0.009***    |
|                     | (0.001)     | (0.001)     | (0.001)     | (0.001)     |
| Pop density         | −0.0002***  | −0.0004***  | −0.001***   | 0.0005***   |
|                     | (0.0001)    | (0.0001)    | (0.0001)    | (0.0001)    |
| Pop revenues        | −0.118***   | 0.071***    | 0.034***    | 0.323***    |
|                     | (0.014)     | (0.011)     | (0.010)     | (0.011)     |
| Slope               | −0.211***   | −0.329***   | −0.097***   | −0.250***   |
|                     | (0.008)     | (0.006)     | (0.006)     | (0.006)     |
| TEXT2               | 1.480***    | 1.707***    | 0.028       | 0.965***    |
|                     | (0.131)     | (0.101)     | (0.096)     | (0.101)     |
| TEXT3               | 2.670***    | 2.718***    | 0.792***    | 1.691***    |
|                     | (0.139)     | (0.108)     | (0.102)     | (0.107)     |
| TEXT4               | 3.099***    | 2.904***    | 0.685***    | 1.489***    |
|                     | (0.209)     | (0.162)     | (0.153)     | (0.161)     |

|                  | (1) | (2) | (3) | (4) |
|------------------|-----|-----|-----|-----|
| \( R^2 \)        | 0.267 | 0.425 | 0.143 | 0.409 |
| Moran’s I         | 0.611*** | 0.445*** | 0.442** | 0.375*** |
| Log Lik.          | −24609.97 | −22362.51 | −21878.84 | −22300.19 |
| AIC.              | 49239.94 | 44745.02 | 43777.68 | 44620.38 |

*Note:* *p<0.1; **p<0.05; ***p<0.01
### Table D3: Land shadow price, SLX

| Dependent variable: | ln(pst/oth) | ln(agr/oth) | ln(urb/oth) | ln(urb/oth) |
|---------------------|-------------|-------------|-------------|-------------|
| x(Intercept)        | 1.9221***   | 0.2801      | 2.3623***   | -5.3926***  |
|                     | (0.3160)    | (0.2540)    | (0.2330)    | (0.2540)    |
| xShadow price       | 3.6517**    | 1.2061      | 1.1898      | 1.4893      |
|                     | (1.5980)    | (1.2390)    | (1.1770)    | (1.2370)    |
| xFor revenue        | -0.0083     | -0.0049     | -0.0073*    | -0.0038     |
|                     | (0.0050)    | (0.0040)    | (0.0040)    | (0.0040)    |
| xPop density        | -2e-04***   | -3e-04***   | -4e-04***   | 3e-04***    |
|                     | (0.0000)    | (0.0000)    | (0.0000)    | (0.0000)    |
| xPop revenues       | 0.0331      | 0.0549**    | 0.0475**    | 0.2522***   |
|                     | (0.0280)    | (0.0220)    | (0.0210)    | (0.0220)    |
| xSlope              | -0.0904***  | -0.2010***  | 0.0361*     | -0.1974***  |
|                     | (0.0260)    | (0.0200)    | (0.0190)    | (0.0200)    |
| xTEXT2              | 0.4723***   | 0.6629***   | 0.1355      | 0.2699*     |
|                     | (0.1830)    | (0.1420)    | (0.1350)    | (0.1410)    |
| xTEXT3              | 0.8794***   | 1.1544***   | 0.3875**    | 0.5133***   |
|                     | (0.2160)    | (0.1670)    | (0.1590)    | (0.1670)    |
| xTEXT4              | 1.0604***   | 1.3483***   | 0.1940      | 0.1630      |
|                     | (0.2960)    | (0.2290)    | (0.2180)    | (0.2290)    |
| xlag.Shadow price   | -6.5451***  | -0.8431     | -2.0264*    | -1.7206     |
|                     | (1.6380)    | (1.2710)    | (1.2070)    | (1.2680)    |
| xlag.For revenue    | 0.0233***   | 0.0114***   | 0.0143***   | 0.0129***   |
|                     | (0.0050)    | (0.0040)    | (0.0040)    | (0.0040)    |
| xlag.Pop density    | 2e-04       | -4e-04***   | -6e-04***   | 2e-04       |
|                     | (0.0000)    | (0.0000)    | (0.0000)    | (0.0000)    |
| xlag.Pop revenues   | -0.2171***  | 0.0333      | -0.0107     | 0.0926***   |
|                     | (0.0350)    | (0.0270)    | (0.0250)    | (0.0270)    |
| xlag.Slope          | -0.1252***  | -0.1364***  | -0.1409***  | -0.0506***  |
|                     | (0.0270)    | (0.0210)    | (0.0200)    | (0.0210)    |
| xlag.TEXT2          | 1.6343***   | 1.8896***   | -0.4479**   | 1.2605***   |
|                     | (0.2590)    | (0.2010)    | (0.1900)    | (0.2000)    |
| xlag.TEXT3          | 2.9845***   | 2.6322***   | 0.5722***   | 1.9686***   |
|                     | (0.2850)    | (0.2210)    | (0.2100)    | (0.2210)    |
| xlag.TEXTURE4       | 3.1023***   | 2.3348***   | 0.4387      | 2.1541***   |
|                     | (0.4350)    | (0.3380)    | (0.3210)    | (0.3370)    |

| R²                  | 0.286       | 0.439       | 0.158       | 0.417       |
| Log Lik.            | -24494.86   | -22254.2    | -21800.75   | -22236.56   |
| AIC                 | 49025.72    | 44544.4     | 43637.5     | 44599.15    |

**Note:**  "p<0.1; "∗∗p<0.05; "∗∗∗p<0.01
Table D4: Land shadow price, SEM

| Dependent variable: | ln(pst/oth) | ln(agr/oth) | ln(for/oth) | ln(urb/oth) |
|---------------------|-------------|-------------|-------------|-------------|
| Constant            | -0.037      | 1.370***    | 1.077***    | -3.801***   |
|                     | (0.619)     | (0.458)     | (0.426)     | (0.400)     |
| Shadow price        | -0.479      | 0.888*      | -0.027      | 0.384       |
|                     | (0.661)     | (0.481)     | (0.446)     | (0.406)     |
| For revenue         | 0.010***    | 0.008***    | 0.008***    | 0.009***    |
|                     | (0.002)     | (0.002)     | (0.001)     | (0.001)     |
| Pop density         | -0.0002***  | -0.0002***  | -0.0004***  | 0.0004***   |
|                     | (0.0001)    | (0.0001)    | (0.001)     | (0.0001)    |
| Pop revenues        | 0.024       | 0.074***    | 0.053***    | 0.284***    |
|                     | (0.017)     | (0.015)     | (0.014)     | (0.015)     |
| Slope               | -0.142***   | -0.267***   | -0.036***   | -0.244***   |
|                     | (0.014)     | (0.012)     | (0.011)     | (0.011)     |
| TEXT2               | 0.520***    | 0.701***    | 0.165       | 0.395***    |
|                     | (0.114)     | (0.105)     | (0.100)     | (0.111)     |
| TEXT3               | 0.999***    | 1.271***    | 0.446***    | 0.769***    |
|                     | (0.133)     | (0.122)     | (0.116)     | (0.128)     |
| TEXT4               | 1.318***    | 1.573***    | 0.371**     | 0.492***    |
|                     | (0.183)     | (0.168)     | (0.160)     | (0.177)     |

|                  | (1) | (2) | (3) | (4) |
|------------------|-----|-----|-----|-----|
| \( R^2 \)        | 0.668 | 0.635 | 0.448 | 0.569 |
| \( \lambda \)    | 0.851*** | 0.775*** | 0.765*** | 0.687*** |
| Log Lik.          | -21115.67 | -20355.9 | -19935.91 | -20908.4 |
| AIC.              | 42253.34 | 40733.8 | 39893.83 | 41838.8 |

Note: *\(p<0.1; \)**\(p<0.05; \)**\(p<0.01\)
Table D5: Land shadow price, SAR

| Dependent variable: | ln(pst/oth) | ln(agr/oth) | ln(for/oth) | ln(urb/oth) |
|---------------------|-------------|-------------|-------------|-------------|
| Constant            | 0.213       | 0.129       | 0.334***    | -1.982***   |
|                     | (0.142)     | (0.103)     | (0.174)     |             |
| Shadow price        | -0.468***   | 0.036       | -0.174      | -0.223*     |
|                     | (0.127)     | (0.115)     | (0.128)     |             |
| For revenue         | 0.002***    | 0.001       | 0.002***    | 0.002***    |
|                     | (0.0004)    | (0.0004)    | (0.0005)    |             |
| Pop density         | -0.0002***  | -0.0003     | -0.0003***  | 0.0002***   |
|                     | (0.0001)    | (0.0004)    | (0.0001)    |             |
| Pop revenues        | -0.019*     | 0.032       | 0.020***    | 0.156***    |
|                     | (0.010)     | (0.006)     | (0.009)     |             |
| Slope               | -0.045***   | -0.102      | -0.023***   | -0.100***   |
|                     | (0.005)     | (0.004)     | (0.005)     |             |
| TEXT2               | 0.413***    | 0.661       | 0.032       | 0.464***    |
|                     | (0.080)     | (0.083)     |             |             |
| TEXT3               | 0.727***    | 1.028       | 0.294***    | 0.741***    |
|                     | (0.087)     | (0.014)     | (0.089)     |             |
| TEXT4               | 0.964***    | 1.215       | 0.219**     | 0.560***    |
|                     | (0.130)     | (0.090)     | (0.133)     |             |

|                      | R²          | ρ           | Log Lik.   | AIC.        |
|----------------------|-------------|-------------|------------|-------------|
|                      | 0.67        | 0.833***    | -21085.25  | 42192.5     |
|                      | 0.638       | 0.743***    | -20321.76  | 40665.52    |
|                      | 0.452       | 0.755***    | -19903.76  | 39829.52    |
|                      | 0.567       | 0.652***    | -20930.1   | 41882.21    |

Note: *p<0.1; **p<0.05; ***p<0.01
### Table D6: Land shadow price, SDM

|                  | ln(pst/oth) | ln(agr/oth) | ln(for/oth) | ln(urb/oth) |
|------------------|-------------|-------------|-------------|-------------|
| Constant         | 0.497***    | 0.082       | 0.708***    | 1.757***    |
|                  | (0.191)     | (0.167)     | (0.211)     |             |
| Shadow price     | 2.181       | 1.186       | 1.162**     | 1.260**     |
|                  | (1.789)     | (0.533)     | (0.511)     |             |
| For revenue      | 0.00004     | -0.001      | -0.003      | 0.001       |
|                  | (0.00004)   | (0.002)     |             |             |
| Pop density      | -0.0062     | -0.0002***  | -0.0033***  | 0.0004***   |
|                  | (0.0002)    | (0.00003)   | (0.00005)   | (0.0001)    |
| Pop revenues     | 0.054***    | 0.080***    | 0.067***    | 0.258***    |
|                  | (0.019)     | (0.015)     | (0.015)     | (0.018)     |
| Slope            | -0.107***   | -0.196***   | 0.026***    | -0.203***   |
|                  | (0.024)     | (0.015)     | (0.003)     | (0.016)     |
| TEXT2            | 0.436**     | 0.530***    | 0.143*      | 0.237**     |
|                  | (0.197)     | (0.060)     | (0.082)     | (0.102)     |
| TEXT3            | 0.848***    | 0.979***    | 0.339***    | 0.467***    |
|                  | (0.122)     | (0.050)     | (0.092)     | (0.128)     |
| TEXT4            | 1.104***    | 1.216***    | 0.208*      | 0.109       |
|                  | (0.170)     | (0.141)     | (0.123)     | (0.139)     |
| lag.Shadow price | -2.635      | -1.109      | -1.354**    | -1.368**    |
|                  | (1.778)     | (0.548)     |             | (0.537)     |
| lag.For revenue  | 0.002***    | 0.002       | 0.004*      | 0.002       |
|                  | (0.001)     | (0.002)     |             |             |
| lag.Pop density  | 0.0001      | -0.0001     | -0.0001***  | -0.0002**   |
|                  | (0.0003)    | (0.00002)   | (0.00001)   |             |
| lag.Pop revenues | -0.103***   | -0.062***   | -0.066***   | -0.143***   |
|                  | (0.022)     | (0.013)     | (0.018)     | (0.022)     |
| lag.Slope        | 0.068**     | 0.108***    | -0.055***   | 0.120***    |
|                  | (0.029)     | (0.016)     | (0.006)     | (0.017)     |
| lag.TEXTURE2     | -0.070      | 0.188       | -0.263***   | 0.281*      |
|                  | (0.278)     | (0.097)     |             | (0.162)     |
| lag.TEXTURE3     | -0.182      | 0.061       | -0.106      | 0.353*      |
|                  | (0.118)     | (0.089)     |             | (0.195)     |
| lag.TEXTURE4     | -0.266      | -0.092      | -0.023      | 0.804***    |
|                  | (0.286)     | (0.205)     |             | (0.253)     |
| ρ                | 0.835***    | 0.756***    | 0.751***    | 0.675***    |

**Note:** *p<0.1; **p<0.05; ***p<0.01
### Table D7: Land shadow price, SDEM

| Dependent variable: | ln(pst/oth) | ln(agr/oth) | ln(for/oth) | ln(urb/oth) |
|---------------------|-------------|-------------|-------------|-------------|
| Constant            | 3.119***    | 1.729***    | 2.921***    | −4.706***   |
|                     | (0.890)     | (0.619)     | (0.581)     | (0.534)     |
| Shadow price        | 2.140**     | 1.413       | 1.461*      | 1.242       |
|                     | (0.981)     | (0.920)     | (0.880)     | (1.004)     |
| For revenue         | 0.002       | 0.001       | −0.001      | 0.003       |
|                     | (0.003)     | (0.003)     | (0.003)     | (0.003)     |
| Pop density         | −0.0002***  | −0.0002***  | −0.0003***  | 0.0004***   |
|                     | (0.0001)    | (0.0001)    | (0.0001)    | (0.0001)    |
| Pop revenues        | 0.039**     | 0.085***    | 0.072***    | 0.264***    |
|                     | (0.017)     | (0.016)     | (0.015)     | (0.017)     |
| Slope               | −0.119***   | −0.206***   | 0.012       | −0.207***   |
|                     | (0.015)     | (0.014)     | (0.013)     | (0.015)     |
| TEXT2               | 0.524***    | 0.675***    | 0.095       | 0.338***    |
|                     | (0.117)     | (0.105)     | (0.100)     | (0.112)     |
| TEXT3               | 0.991***    | 1.192***    | 0.372**     | 0.626***    |
|                     | (0.135)     | (0.122)     | (0.116)     | (0.130)     |
| TEXT4               | 1.332***    | 1.435***    | 0.239       | 0.313*      |
|                     | (0.186)     | (0.169)     | (0.161)     | (0.181)     |
| lag.Shadow price    | −4.376***   | −0.931      | −2.063***   | −1.397      |
|                     | (1.251)     | (1.062)     | (1.011)     | (1.104)     |
| lag.For revenue     | 0.011**     | 0.005       | 0.008**     | 0.005       |
|                     | (0.004)     | (0.003)     | (0.003)     | (0.004)     |
| lag.Pop density     | −0.0005***  | −0.001***   | −0.001***   | −0.00000    |
|                     | (0.0002)    | (0.0002)    | (0.0002)    | (0.0002)    |
| lag.Pop revenues    | −0.236***   | −0.057*     | −0.096***   | 0.077***    |
|                     | (0.038)     | (0.031)     | (0.029)     | (0.030)     |
| lag.Slope           | −0.118***   | −0.150***   | −0.118***   | −0.051**    |
|                     | (0.026)     | (0.020)     | (0.019)     | (0.020)     |
| lag.TEXT2           | 0.564*      | 1.089***    | −0.329      | 0.619**     |
|                     | (0.319)     | (0.262)     | (0.248)     | (0.253)     |
| lag.TEXT3           | 0.994***    | 1.762***    | 0.340       | 1.169***    |
|                     | (0.358)     | (0.288)     | (0.273)     | (0.275)     |
| lag.TEXT4           | 1.800***    | 2.115***    | 0.436       | 1.808***    |
|                     | (0.512)     | (0.426)     | (0.404)     | (0.416)     |
| λ                   | 0.84***     | 0.76***     | 0.754***    | 0.678***    |
| N                   | 8818        |             |             |             |
| $R^2$               | 0.672       | 0.641       | 0.455       | 0.571       |
| Log Lik.            | −21059.32   | −20288.62   | −19884.64   | −20882.65   |
| AIC.                | 42156.64    | 40615.23    | 39807.28    | 41803.3     |

Note: *p<0.1; **p<0.05; ***p<0.01
Table D8: Land shadow price, SAC

| Dependent variable: | ln(pst/oth) | ln(agr/oth) | ln(for/oth) | ln(urb/oth) |
|---------------------|-------------|-------------|-------------|-------------|
| (Intercept)         | 0.1363      | 0.0299      | 0.1968***   | -4.2225***  |
| Shadow price        | -0.2258***  | 0.0125      | -0.0940*    | 1.1232*     |
| For revenue         | 8e-04***    | 3e-04*      | 7e-04***    | 0.0116***   |
| Pop density         | -1e-04***   | -2e-04***   | -3e-04***   | 4e-04***    |
| Pop revenues        | -0.0164***  | 0.0256***   | 0.0111**    | 0.2891***   |
| Slope               | -0.0258***  | -0.0778***  | -0.0134***  | -0.2624***  |
| TEXT2               | 0.2789***   | 0.5722***   | -0.0032     | 0.2900***   |
| TEXT3               | 0.4687***   | 0.8601***   | 0.1856***   | 0.6049***   |
| TEXT4               | 0.6753***   | 1.0342***   | 0.1230      | 0.3439**    |
| R²                  | 0.677       | 0.639       | 0.46        | 0.573       |
| λ                   | -0.467      | -0.422      | 0.841***    |
| ρ                   | 0.916***    | 0.813       | 0.871***    | -0.4        |
| Log Lik.            | -20992.85   | -20310.56   | -19842.86   | -20870.43   |
| AIC.                | 42009.69    | 40645.12    | 39709.72    | 41764.85    |

Note: *p<0.1; **p<0.05; ***p<0.01
Table D9: Land shadow price, GNS

| Dependent variable: | ln(pst/oth) | ln(agr/oth) | ln(for/oth) | ln(urb/oth) |
|---------------------|-------------|-------------|-------------|-------------|
| (Intercept)         | 4.6426***   | 3.2530***   | 4.3331***   | -0.8715***  |
|                     | (1.2890)    | (0.8960)    | (0.8310)    | (0.1430)    |
| Shadow price        | 1.7177***   | 1.3429**    | 1.2545      | 1.1088***   |
|                     | (0.4760)    | (0.6140)    | (NaN)       | (0.2520)    |
| For revenue         | 0.0026      | 8e-04       | -7e-04      | 0.0000      |
|                     | (NaN)       | (0.0010)    | (NaN)       | (NaN)       |
| Pop density         | -3e-04***   | -3e-04***   | -4e-04***   | 3e-04***    |
|                     | (0.0000)    | (0.0000)    | (0.0000)    | (0.0000)    |
| Pop revenues        | 0.0206      | 0.0781***   | 0.0601***   | 0.2663***   |
|                     | (0.0160)    | (0.0140)    | (NaN)       | (0.0160)    |
| Slope               | -0.1324***  | -0.2188***  | 0.0022      | -0.2081***  |
|                     | (0.0160)    | (0.0140)    | (NaN)       | (0.0160)    |
| TEXT2               | 0.5018***   | 0.6710***   | 0.0886      | 0.1790***   |
|                     | (0.1070)    | (0.1100)    | (0.0900)    | (0.0660)    |
| TEXT3               | 0.9432***   | 1.2112***   | 0.3690***   | 0.4206***   |
|                     | (0.1260)    | (0.1240)    | (0.1150)    | (0.0490)    |
| TEXT4               | 1.3656***   | 1.5115***   | 0.2624*     | 0.1348      |
|                     | (0.1800)    | (0.1710)    | (0.1450)    | (NaN)       |
| lag.Shadow price    | -3.9715***  | -0.6083     | -1.9068***  | -1.1677***  |
|                     | (1.4240)    | (0.5230)    | (0.3960)    | (0.3060)    |
| lag.For revenue     | 0.0116      | 0.0063**    | 0.0103***   | 0.0013***   |
|                     | (NaN)       | (0.0030)    | (0.0030)    | (0.0000)    |
| lag.Pop density     | -7e-04***   | -8e-04***   | -9e-04***   | -3e-04***   |
|                     | (0.0000)    | (0.0000)    | (0.0000)    | (0.0000)    |
| lag.Pop revenues    | -0.2698***  | -0.0716**   | -0.1248***  | -0.2115***  |
|                     | (0.0450)    | (0.0330)    | (0.0370)    | (0.0210)    |
| lag.Slope           | -0.2140***  | -0.2655***  | -0.1378***  | 0.1674***   |
|                     | (0.0320)    | (0.0270)    | (0.0240)    | (0.0170)    |
| lag.TEXT2           | 0.5680      | 1.1648***   | -0.2784     | 0.1174      |
|                     | (NaN)       | (0.3030)    | (NaN)       | (0.0810)    |
| lag.TEXT3           | 1.0104      | 2.0449***   | 0.4060      | 0.0337      |
|                     | (NaN)       | (0.3410)    | (NaN)       | (NaN)       |
| lag.TEXT4           | 2.2198***   | 2.7302***   | 0.5405      | 0.3714      |
|                     | (0.3820)    | (0.4840)    | (0.4030)    | (NaN)       |

| R²                   | 0.68        | 0.644       | 0.462       | 0.579       |
| λ                    | 0.928***    | 0.863***    | 0.874***    | -0.497      |
| ρ                    | -0.503      | -0.353      | -0.419      | 0.844***    |
| Log Lik.             | -20951.44   | -20251.25   | -19827.74   | -20800.97   |
| AIC.                 | 41942.88    | 40542.49    | 39695.48    | 41641.95    |

Note: *p<0.1; **p<0.05; ***p<0.01
### D1.2 Land Prices

Table D10: Land prices, OLS

| Dependent variable: | ln(pst/oth) | ln(agr/oth) | ln(for/oth) | ln(urb/oth) |
|---------------------|-------------|-------------|-------------|-------------|
| Constant            | 0.650***    | 1.386***    | 1.840***    | −4.736***   |
|                     | (0.232)     | (0.182)     | (0.171)     | (0.181)     |
| Land price          | −0.694***   | −0.028      | −0.330***   | 0.053*      |
|                     | (0.036)     | (0.028)     | (0.026)     | (0.028)     |
| For revenue         | 0.019***    | 0.007***    | 0.009***    | 0.009***    |
|                     | (0.001)     | (0.001)     | (0.001)     | (0.001)     |
| Pop density         | −0.0002***  | −0.0004***  | −0.001***   | 0.0005***   |
|                     | (0.0001)    | (0.0001)    | (0.0001)    | (0.0001)    |
| Pop revenues        | −0.071***   | 0.079***    | 0.063***    | 0.318***    |
|                     | (0.014)     | (0.011)     | (0.010)     | (0.011)     |
| Slope               | −0.179***   | −0.329***   | −0.083***   | −0.252***   |
|                     | (0.008)     | (0.006)     | (0.006)     | (0.006)     |
| TEXT2               | 1.555***    | 1.706***    | 0.060       | 0.960***    |
|                     | (0.129)     | (0.102)     | (0.095)     | (0.101)     |
| TEXT3               | 2.686***    | 2.739***    | 0.818***    | 1.683***    |
|                     | (0.137)     | (0.108)     | (0.101)     | (0.107)     |
| TEXT4               | 3.241***    | 2.893***    | 0.737***    | 1.483***    |
|                     | (0.206)     | (0.162)     | (0.152)     | (0.160)     |

|                  | (1)         | (2)         | (3)         | (4)         |

| $R^2$                | 0.287       | 0.424       | 0.156       | 0.409       |
| Moran’s $I$          | 0.602***    | 0.445***    | 0.434***    | 0.375***    |
| Log Lik.             | −24489.22   | −22366.61   | −21808.19   | −22298.33   |
| AIC                  | 48998.45    | 44753.23    | 43636.39    | 44616.66    |

Note: *p<0.1; **p<0.05; ***p<0.01
### Table D11: Land prices, SLX

| Dependent variable: | ln(pst/oth) | ln(agr/oth) | ln(agr/oth) | ln(urb/oth) |
|---------------------|-------------|-------------|-------------|-------------|
| x(Intercept)        | 0.4948*     | 0.5207**    | 1.9861***   | -5.4918***  |
|                     | (0.2830)    | (0.2220)    | (0.2100)    | (0.2220)    |
| xLand price         | 0.1157      | 0.2691***   | 0.0400      | 0.4003***   |
|                     | (0.1220)    | (0.0960)    | (0.0910)    | (0.0960)    |
| xFor revenue        | -0.0116**   | -0.0070*    | -0.0082**   | -0.0067*    |
|                     | (0.0050)    | (0.0040)    | (0.0040)    | (0.0040)    |
| xPop density        | -2e-04**    | -3e-04***   | -4e-04***   | 3e-04***    |
|                     | (0.0000)    | (0.0000)    | (0.0000)    | (0.0000)    |
| xPop revenues       | 0.0321      | 0.0498**    | 0.0460**    | 0.2474***   |
|                     | (0.0280)    | (0.0220)    | (0.0210)    | (0.0220)    |
| xSlope              | -0.1143***  | -0.1982***  | 0.0253      | -0.1919***  |
|                     | (0.0250)    | (0.0200)    | (0.0190)    | (0.0200)    |
| xTEXT2              | 0.4761***   | 0.6500***   | 0.1361      | 0.2544*     |
|                     | (0.1800)    | (0.1420)    | (0.1340)    | (0.1410)    |
| xTEXT3              | 0.8574***   | 1.1371***   | 0.3799**    | 0.4873***   |
|                     | (0.2130)    | (0.1680)    | (0.1580)    | (0.1670)    |
| xTEXT4              | 1.0697***   | 1.3347***   | 0.1962      | 0.1496      |
|                     | (0.2920)    | (0.2290)    | (0.2160)    | (0.2290)    |
| xlag.Land price     | -0.8892***  | -0.3273***  | -0.4029***  | -0.4044***  |
|                     | (0.1330)    | (0.1040)    | (0.0990)    | (0.1040)    |
| xlag.For revenue    | 0.0315***   | 0.0132**    | 0.0169***   | 0.0161***   |
|                     | (0.0050)    | (0.0040)    | (0.0040)    | (0.0040)    |
| xlag.Pop density    | 2e-04       | 4e-04***    | 6e-04***    | 2e-04       |
|                     | (0.0000)    | (0.0000)    | (0.0000)    | (0.0000)    |
| xlag.Pop revenues   | -0.1478***  | 0.0493*     | 0.0296      | 0.0926***   |
|                     | (0.0340)    | (0.0270)    | (0.0260)    | (0.0270)    |
| xlag.Slope          | -0.0578**   | -0.1367***  | -0.1106***  | -0.0551***  |
|                     | (0.0270)    | (0.0210)    | (0.0200)    | (0.0210)    |
| xlag.TEXT2          | 1.5759***   | 1.8985***   | -0.3946**   | 1.2696***   |
|                     | (0.2550)    | (0.2010)    | (0.1890)    | (0.2000)    |
| xlag.TEXT3          | 2.5698***   | 2.6845***   | 0.5978***   | 1.9776***   |
|                     | (0.2810)    | (0.2210)    | (0.2080)    | (0.2200)    |
| xlag.TEXT4          | 3.5107***   | 2.3120***   | 0.5784*     | 2.1808***   |
|                     | (0.4290)    | (0.3370)    | (0.3180)    | (0.3360)    |

|         | 0.305  | 0.439  | 0.171  | 0.418  |
| Log Lik. | -24377.26 | -22251.71 | -21734.13 | -22229.14 |
| AIC.     | 45790.52  | 44539.42  | 43504.26  | 44494.29  |

*Note:* *p<0.1; **p<0.05; ***p<0.01
|                       | ln(pst/oth) | ln(agr/oth) | ln(for/oth) | ln(urb/oth) |
|-----------------------|-------------|-------------|-------------|-------------|
| **Constant**          | 0.210       | 1.880**     | 1.421**     | -3.828***   |
|                       | (0.419)     | (0.330)     | (0.305)     | (0.303)     |
| **Land price**        | -0.295***   | 0.056       | -0.190***   | 0.167***    |
|                       | (0.066)     | (0.055)     | (0.051)     | (0.051)     |
| **For revenue**       | 0.012**     | 0.007***    | 0.008***    | 0.008***    |
|                       | (0.002)     | (0.001)     | (0.001)     | (0.001)     |
| **Pop density**       | -0.0002***  | -0.0002***  | -0.0003***  | 0.0004***   |
|                       | (0.0001)    | (0.0001)    | (0.0001)    | (0.0001)    |
| **Pop revenues**      | 0.029*      | 0.074***    | 0.050***    | 0.278***    |
|                       | (0.017)     | (0.015)     | (0.014)     | (0.015)     |
| **Slope**             | -0.145***   | -0.268***   | -0.037***   | -0.246***   |
|                       | (0.014)     | (0.012)     | (0.011)     | (0.011)     |
| **TEXT2**             | 0.537***    | 0.695***    | 0.173*      | 0.386***    |
|                       | (0.114)     | (0.105)     | (0.100)     | (0.111)     |
| **TEXT3**             | 1.024***    | 1.267***    | 0.461***    | 0.758***    |
|                       | (0.133)     | (0.122)     | (0.116)     | (0.128)     |
| **TEXT4**             | 1.336***    | 1.567***    | 0.381**     | 0.484***    |
|                       | (0.183)     | (0.168)     | (0.160)     | (0.177)     |

\[ R^2 \] 0.669 0.635 0.449 0.569

\[ \lambda \] 0.846*** 0.776*** 0.759*** 0.688***

\[ \text{Log Lik.} \] -21106.22 -20357.08 -19929.17 -20903.59

\[ \text{AIC.} \] 42234.45 40736.16 39880.35 41829.19

**Note:** “p<0.1; **p<0.05; ***p<0.01
Table D13: Land prices, SAR

| Dependent variable: | ln(pst/oth) | ln(agr/oth) | ln(for/oth) | ln(urb/oth) |
|---------------------|-------------|-------------|-------------|-------------|
| Constant            | 0.034       | 0.134       | 0.315       | -2.146***   |
|                     | (0.154)     |             |             |             |
| Land price          | -0.133***   | 0.021       | -0.099***   | 0.035       |
|                     | (0.028)     | (0.025)     | (0.021)     | (0.023)     |
| For revenue         | 0.003***    | 0.001*      | 0.002***    | 0.002***    |
|                     | (0.001)     | (0.0004)    | (0.0004)    | (0.0005)    |
| Pop density         | -0.0002**   | -0.0003***  | -0.0003***  | 0.0002***   |
|                     | (0.0001)    | (0.00005)   | (0.00004)   | (0.0001)    |
| Pop revenues        | -0.010      | 0.030***    | 0.029***    | 0.150***    |
|                     | (0.011)     | (0.004)     | (0.009)     | (0.010)     |
| Slope               | -0.040***   | -0.103***   | -0.019***   | -0.101***   |
|                     | (0.005)     | (0.004)     | (0.004)     | (0.005)     |
| TEXT2               | 0.434***    | 0.659***    | 0.041       | 0.463***    |
|                     | (0.095)     | (0.064)     |             | (0.083)     |
| TEXT3               | 0.743***    | 1.026***    | 0.306       | 0.730***    |
|                     | (0.101)     | (0.077)     |             | (0.090)     |
| TEXT4               | 1.003***    | 1.211***    | 0.237       | 0.563***    |
|                     | (0.139)     | (0.117)     |             | (0.133)     |

|          | (1) | (2) | (3) | (4) |
|----------|-----|-----|-----|-----|
| $R^2$    | 0.671 | 0.638 | 0.454 | 0.567 |
| $\rho$   | 0.828*** | 0.743*** | 0.749*** | 0.652*** |
| Log Lik. | -21073.71 | -20321.29 | -19892.62 | -20930.09 |
| AIC.     | 42169.42 | 40664.59 | 39807.25 | 41882.18 |

Note: *p<0.1; **p<0.05; ***p<0.01
Table D14: Land prices, SDM

| Dependent variable:          | ln(pst/oth) | ln(agr/oth) | ln(for/oth) | ln(urb/oth) |
|------------------------------|-------------|-------------|-------------|-------------|
| Constant                     | 0.271       | 0.141       | 0.634**     | -1.793***   |
| (0.371)                      | (0.112)     | (0.155)     | (0.201)     |             |
| Land price                   | -0.054***   | 0.183***    | 0.021       | 0.333***    |
| (0.005)                      | (0.064)     |             | (0.081)     |             |
| For revenue                  | -0.002      | -0.003*     | -0.004*     | -0.001      |
| (0.002)                      | (0.002)     | (0.002)     | (0.003)     |             |
| Pop density                  | -0.0002***  | -0.0002***  | -0.0003***  | 0.0004***   |
| (0.0001)                     | (0.00005)   | (0.0001)    | (0.0001)    |             |
| Pop revenues                 | 0.055**     | 0.077***    | 0.067***    | 0.254***    |
| (0.022)                      | (0.017)     | (0.016)     | (0.018)     |             |
| Slope                        | -0.112***   | -0.193***   | 0.024***    | -0.199***   |
| (0.019)                      | (0.015)     | (0.008)     | (0.016)     |             |
| TEXT2                        | 0.438***    | 0.522***    | 0.141*      | 0.224*      |
| (0.128)                      | (0.087)     | (0.075)     | (0.116)     |             |
| TEXT3                        | 0.845***    | 0.966***    | 0.335***    | 0.445***    |
| (0.123)                      | (0.094)     | (0.075)     | (0.118)     |             |
| TEXT4                        | 1.102***    | 1.207***    | 0.205*      | 0.097       |
| (0.201)                      | (0.113)     | (0.117)     | (0.135)     |             |
| lag.Land price               | -0.086      | -0.190***   | -0.119***   | -0.333***   |
| (0.069)                      | (0.022)     | (0.089)     |             |             |
| lag.For revenue              | 0.005       | 0.004**     | 0.006***    | 0.004       |
| (0.002)                      | (0.002)     | (0.003)     |             |             |
| lag.Pop density              | 0.0001      | -0.0001*    | -0.0001***  | -0.0002**   |
| (0.0001)                     | (0.00001)   | (0.0001)    |             |             |
| lag.Pop revenues             | -0.090***   | -0.059***   | -0.054***   | -0.142***   |
| (0.032)                      | (0.018)     | (0.022)     |             |             |
| lag.Slope                    | 0.079***    | 0.105***    | -0.047***   | 0.116***    |
| (0.018)                      | (0.016)     | (0.018)     |             |             |
| lag.TEXT2                    | -0.039      | 0.192*      | -0.250***   | 0.287       |
| (0.096)                      | (0.108)     | (0.090)     | (0.191)     |             |
| lag.TEXT3                    | -0.163      | 0.080       | -0.090*     | 0.366*      |
| (0.228)                      | (0.095)     | (0.053)     | (0.192)     |             |
| lag.TEXT4                    | -0.172      | -0.094      | 0.018       | 0.818***    |
| (0.362)                      |             | (0.231)     |             |             |
| \(\rho\)                    | 0.83***     | 0.756***    | 0.746***    | 0.675***    |

| \(N\)                        | 8818        |             |             |             |
| \(R^2\)                      | 0.673       | 0.641       | 0.456       | 0.573       |
| Log Lik.                     | -21050.4    | -20287.89   | -19877.76   | -20868.83   |
| AIC.                         | 42138.79    | 40613.77    | 39703.52    | 41775.65    |

*Note:* *p<0.1; **p<0.05; ***p<0.01
Table D15: Land prices, SDEM

| Dependent variable:            | ln(pst/oth) | ln(agr/oth) | ln(for/oth) | ln(urb/oth) |
|--------------------------------|-------------|-------------|-------------|-------------|
| **Constant**                   | 2.290***    | 2.004***    | 2.797***    | -4.803***   |
|                                | (0.715)     | (0.526)     | (0.488)     | (0.463)     |
| **Land price**                 | -0.110      | 0.124*      | -0.006      | 0.283***    |
|                                | (0.075)     | (0.070)     | (0.067)     | (0.076)     |
| **For revenue**                | 0.0003      | -0.001      | -0.003      | 0.001       |
|                                | (0.003)     | (0.003)     | (0.003)     | (0.003)     |
| **Pop density**                | -0.0002***  | -0.0002***  | -0.0003***  | 0.0004***   |
|                                | (0.0001)    | (0.0001)    | (0.0001)    | (0.0001)    |
| **Pop revenues**               | 0.045***    | 0.083***    | 0.075***    | 0.260***    |
|                                | (0.017)     | (0.016)     | (0.015)     | (0.017)     |
| **Slope**                      | -0.120***   | -0.205***   | 0.012       | -0.204***   |
|                                | (0.015)     | (0.014)     | (0.013)     | (0.015)     |
| **TEXT2**                      | 0.538***    | 0.667***    | 0.098       | 0.326**     |
|                                | (0.117)     | (0.105)     | (0.100)     | (0.111)     |
| **TEXT3**                      | 0.999***    | 1.185***    | 0.372***    | 0.608***    |
|                                | (0.135)     | (0.122)     | (0.116)     | (0.130)     |
| **TEXT4**                      | 1.344***    | 1.425***    | 0.243       | 0.302*      |
|                                | (0.186)     | (0.169)     | (0.161)     | (0.181)     |
| lag.Land price                 | -0.486***   | -0.076      | -0.314***   | -0.228**    |
|                                | (0.127)     | (0.103)     | (0.097)     | (0.102)     |
| lag.For revenue                | 0.016***    | 0.007**     | 0.011***    | 0.007**     |
|                                | (0.004)     | (0.003)     | (0.003)     | (0.003)     |
| lag.Pop density                | -0.0005**   | -0.001***   | -0.001***   | 0.00002     |
|                                | (0.0002)    | (0.0002)    | (0.0002)    | (0.0002)    |
| lag.Pop revenues               | -0.202***   | -0.058*     | -0.070**    | 0.070**     |
|                                | (0.039)     | (0.031)     | (0.030)     | (0.030)     |
| lag.Slope                      | -0.102***   | -0.152***   | -0.107***   | -0.054***   |
|                                | (0.026)     | (0.021)     | (0.019)     | (0.020)     |
| lag.TEXT2                      | 0.635**     | 1.079***    | -0.298      | 0.613**     |
|                                | (0.317)     | (0.262)     | (0.246)     | (0.253)     |
| lag.TEXT3                      | 1.058***    | 1.774***    | 0.380       | 1.161***    |
|                                | (0.355)     | (0.288)     | (0.271)     | (0.275)     |
| lag.TEXT4                      | 1.888***    | 2.098***    | 0.478       | 1.799***    |
|                                | (0.509)     | (0.426)     | (0.401)     | (0.416)     |
| **λ**                          | 0.835***    | 0.76***     | 0.749***    | 0.678***    |

N 8818
R² 0.673
Log Lik. -21051.27 -20288.49 -19877.46 -20876.35
AIC 42140.53 40614.98 39792.92 41790.71

Note: *p<0.1; **p<0.05; ***p<0.01
Table D16: Land prices, SAC

| Dependent variable: | ln(pst/oth) | ln(agr/oth) | ln(for/oth) | ln(urb/oth) |
|---------------------|------------|-------------|-------------|-------------|
| (Intercept)          | 0.0419     | 0.0209      | 0.1804*     | -3.9434***  |
|                     | (NaN)      | (0.0400)    | (0.0930)    | (0.4290)    |
| Land price          | -0.0698*** | 0.0231      | -0.0571***  | 0.2637***   |
|                     | (0.0170)   | (0.0200)    | (0.0150)    | (0.0670)    |
| For revenue         | 0.0012***  | 3e-04       | 0.0010***   | 0.0099***   |
|                     | (0.0000)   | (0.0000)    | (0.0000)    | (0.0020)    |
| Pop density         | -1e-04***  | -2e-04***   | -3e-04***   | 4e-04***    |
|                     | (0.0000)   | (0.0000)    | (0.0000)    | (0.0000)    |
| Pop revenues        | -0.0111**  | 0.0230***   | 0.0170***   | 0.2832***   |
|                     | (0.0040)   | (0.0070)    | (0.0060)    | (0.0160)    |
| Slope               | -0.0231*** | -0.0783***  | -0.0113***  | -0.2605***  |
|                     | (0.0030)   | (0.0060)    | (0.0030)    | (0.0140)    |
| TEXT2               | 0.2938***  | 0.5681***   | 0.0037      | 0.2749*     |
|                     | (0.0560)   | (0.0630)    | (NaN)       | (0.1460)    |
| TEXT3               | 0.4806***  | 0.8537***   | 0.1951***   | 0.5837***   |
|                     | (0.0660)   | (0.0750)    | (0.0430)    | (0.1580)    |
| TEXT4               | 0.7068***  | 1.0277***   | 0.1383*     | 0.3291*     |
|                     | (0.1000)   | (0.1110)    | (0.0830)    | (0.1970)    |

|             | R²      | Log Lik.  | AIC.    |
|-------------|---------|-----------|---------|
| Text 1      | 0.678   | -20985.64 | 41995.29 |
| Text 2      | 0.639   | -20309.68 | 40643.36 |
| Text 3      | 0.461   | -19835.38 | 39694.75 |
| Text 4      | 0.573   | -20863.42 | 41750.83 |

| Note:       | *p<0.1; **p<0.05; ***p<0.01 |
Table D17: Land prices, GNS

| Dependent variable: | ln(pst/oth) | ln(agr/oth) | ln(for/oth) | ln(urb/oth) |
|---------------------|-------------|-------------|-------------|-------------|
| (Intercept)          | 4.1561***   | 3.5873***   | 4.3680***   | -0.8794***  |
| (Land price)         | -0.1357     | 0.1204*     | -0.0253     | 0.3386***   |
| (For revenue)        | 0.0010      | -0.0011     | -0.0021     | -0.0023*    |
| (Pop density)        | -3e-04***   | -3e-04***   | -3e-04***   | 3e-04***    |
| (Pop revenues)       | 0.0262      | 0.0754***   | 0.0638***   | 0.2611***   |
| (Slope)              | -0.1355***  | -0.2178***  | 0.0018      | -0.2013***  |
| (TEXT2)              | 0.5138***   | 0.6625***   | 0.0923      | 0.1638**    |
| (TEXT3)              | 0.9548***   | 1.2017***   | 0.3723      | 0.3976***   |
| (TEXT4)              | 1.3735***   | 1.5017***   | 0.2647***   | 0.1201      |
| (lag.Land price)     | -0.5514***  | 0.0268      | -0.3605**   | -0.3397***  |
| (lag.For revenue)    | 0.0170***   | 0.0072***   | 0.0130***   | 0.0037***   |
| (lag.Pop density)    | -7e-04***   | -8e-04***   | -8e-04***   | -3e-04***   |
| (lag.Pop revenues)   | -0.2391***  | -0.0790     | -0.1001*    | -0.2089***  |
| (lag.Slope)          | -0.2144***  | -0.2693***  | -0.1321***  | 0.1611***   |
| (lag.TEXT2)          | 0.6235      | 1.1468***   | -0.2518     | 0.1266*     |
| (lag.TEXT3)          | 1.0789***   | 2.0419***   | 0.4500*     | 0.0293      |
| (lag.TEXT4)          | 2.2710***   | 2.7157***   | 0.5677      | 0.3855***   |

$R^2$ 0.681 0.644 0.462 0.58  
$\lambda$ 0.926*** 0.864*** 0.87*** -0.501  
$\rho$ 0.502 0.356 0.414 0.845***  
Log Lik. -20944.89 -20250.55 -19823.05 -20790.96  
AIC. 41929.77 40541.09 39686.1 41621.91

Note: *p<0.1; **p<0.05; ***p<0.01
### Table D18: Farmers’ revenues, OLS

| Dependent variable: | ln(pst/oth) | ln(agr/oth) | ln(for/oth) | ln(urb/oth) |
|---------------------|------------|------------|------------|------------|
| Constant            | 0.621**    | 1.168***   | 2.703***   | −5.201***  |
|                     | (0.277)    | (0.214)    | (0.201)    | (0.212)    |
| Farmers’ revenues   | −1.040***  | 0.409*     | −2.320***  | 1.052***   |
|                     | (0.306)    | (0.235)    | (0.221)    | (0.233)    |
| For revenue         | 0.019***   | 0.006***   | 0.010***   | 0.009***   |
|                     | (0.001)    | (0.001)    | (0.001)    | (0.001)    |
| Pop density         | −0.0003*** | −0.0004*** | −0.001***  | 0.0004***  |
|                     | (0.0001)   | (0.0001)   | (0.0001)   | (0.0001)   |
| Pop revenues        | −0.136***  | 0.073***   | 0.045***   | 0.316***   |
|                     | (0.014)    | (0.011)    | (0.010)    | (0.011)    |
| Slope               | −0.207***  | −0.329***  | −0.099***  | −0.248***  |
|                     | (0.008)    | (0.006)    | (0.005)    | (0.006)    |
| TEXT2               | 1.468***   | 1.714***   | −0.028***  | 0.993***   |
|                     | (0.132)    | (0.102)    | (0.096)    | (0.101)    |
| TEXT3               | 2.582***   | 2.737***   | 0.759***   | 1.696***   |
|                     | (0.140)    | (0.108)    | (0.101)    | (0.107)    |
| TEXT4               | 3.119***   | 2.909***   | 0.594***   | 1.537***   |
|                     | (0.210)    | (0.162)    | (0.153)    | (0.161)    |

| R²                  | 0.257      | 0.424      | 0.152      | 0.41       |
| Moran’s I           | 0.618***   | 0.445***   | 0.437***   | 0.374***   |
| Log Lik.            | −24670.37  | −22365.62  | −21832.19  | −22290.03  |
| AIC                 | 49360.74   | 44751.23   | 43684.37   | 44600.06   |

**Note:** *p<0.1; **p<0.05; ***p<0.01
Table D19: Farmers' revenues, SLX

|                     | ln(pst/oth) | ln(agr/oth) | ln(agr/oth) | ln(urb/oth) |
|---------------------|-------------|-------------|-------------|-------------|
| x(Intercept)        | 0.7032**    | 0.3063      | 3.0868***   | -6.0275***  |
|                     | (0.3240)    | (0.2490)    | (0.2350)    | (0.2480)    |
| xFarmers' revenues  | -2.0458     | -2.9623     | -1.0284     | -5.3773***  |
|                     | (2.7040)    | (2.0810)    | (1.9650)    | (2.0740)    |
| xFor revenue        | -0.0118**   | -0.0049     | -0.0085**   | -0.0030     |
|                     | (0.0050)    | (0.0040)    | (0.0040)    | (0.0040)    |
| xPop density        | -2e-04**    | -3e-04***   | -4e-04***   | 4e-04***    |
|                     | (0.0000)    | (0.0000)    | (0.0000)    | (0.0000)    |
| xPop revenues       | 0.0381      | 0.0549**    | 0.0432**    | 0.2557***   |
|                     | (0.0290)    | (0.0220)    | (0.0210)    | (0.0220)    |
| xSlope              | -0.0923***  | -0.2006***  | 0.0391**    | -0.1985***  |
|                     | (0.0260)    | (0.0200)    | (0.0190)    | (0.0200)    |
| xTEXT2              | 0.4750***   | 0.6617***   | 0.1216      | 0.2747*     |
|                     | (0.1840)    | (0.1420)    | (0.1340)    | (0.1410)    |
| xTEXT3              | 0.8607***   | 1.1499***   | 0.3724**    | 0.5067***   |
|                     | (0.2180)    | (0.1680)    | (0.1580)    | (0.1670)    |
| xTEXT4              | 1.0581***   | 1.3400***   | 0.1666      | 0.1612      |
|                     | (0.2980)    | (0.2290)    | (0.2170)    | (0.2290)    |
| xlag.Farmers' revenue | 1.1491    | 3.3384      | -1.5342     | 6.4439***   |
|                     | (2.7500)    | (2.1160)    | (1.9980)    | (2.1090)    |
| xlag.For revenue    | 0.0306***   | 0.0107***   | 0.0183***   | 0.0116***   |
|                     | (0.0050)    | (0.0040)    | (0.0040)    | (0.0040)    |
| xlag.Pop density    | 1e-04      | -4e-04***   | -6e-04***   | 2e-04       |
|                     | (0.0000)    | (0.0000)    | (0.0000)    | (0.0000)    |
| xlag.Pop revenues   | -0.2498***  | 0.0346      | 0.0075      | 0.0760***   |
|                     | (0.0350)    | (0.0270)    | (0.0250)    | (0.0270)    |
| xlag.Slope          | -0.1200***  | -0.1368***  | -0.1460***  | -0.0474**   |
|                     | (0.0270)    | (0.0210)    | (0.0200)    | (0.0210)    |
| xlag.TEXT2          | 1.0223***   | 1.9029***   | -0.5472***  | 1.3077***   |
|                     | (0.2610)    | (0.2010)    | (0.1900)    | (0.2000)    |
| xlag.TEXT3          | 2.8111***   | 2.6574***   | 0.5430***   | 1.9509***   |
|                     | (0.2870)    | (0.2210)    | (0.2080)    | (0.2200)    |
| xlag.TEXT4          | 3.3012***   | 2.3494***   | 0.2513      | 2.3046***   |
|                     | (0.4390)    | (0.3380)    | (0.3190)    | (0.3370)    |

\( R^2 \) 0.274 0.439 0.168 0.419
Log Lik. -24565.05 -22254.8 -21748.16 -22225.66
AIC. 49166.11 44545.6 43532.32 44873.33

Note: *p<0.1; **p<0.05; ***p<0.01
### Table D20: Farmers’ revenues, SEM

|                  | ln(pst/oth) | ln(agr/oth) | ln(for/oth) | ln(urb/oth) |
|------------------|-------------|-------------|-------------|-------------|
| **Constant**     | 0.834       | 2.057       | 2.302       | -3.904      |
|                  | (0.669)     | (0.480)     | (0.440)     | (0.411)     |
| Farmers’ revenues| -2.190      | -.127       | -2.316      | 0.686       |
|                  | (0.966)     | (0.676)     | (0.615)     | (0.555)     |
| For revenue      | 0.012       | 0.007       | 0.009       | 0.008       |
|                  | (0.002)     | (0.002)     | (0.001)     | (0.001)     |
| Pop density      | -0.0002     | -0.0002     | -0.0003     | 0.0004      |
|                  | (0.0001)    | (0.0001)    | (0.0001)    | (0.0001)    |
| Pop revenues     | 0.025       | 0.076       | 0.057       | 0.284       |
|                  | (0.017)     | (0.015)     | (0.014)     | (0.015)     |
| Slope            | -0.143      | -0.268      | -0.039      | -0.244      |
|                  | (0.014)     | (0.012)     | (0.011)     | (0.011)     |
| TEXT2            | 0.516       | 0.697       | 0.155       | 0.400       |
|                  | (0.114)     | (0.105)     | (0.100)     | (0.111)     |
| TEXT3            | 0.993       | 1.270       | 0.440       | 0.775       |
|                  | (0.133)     | (0.122)     | (0.116)     | (0.127)     |
| TEXT4            | 1.309       | 1.568       | 0.358       | 0.500       |
|                  | (0.183)     | (0.168)     | (0.160)     | (0.177)     |

|                  | (1)        | (2)        | (3)        | (4)        |
|--------------------|------------|------------|------------|------------|
| R²                 | 0.668      | 0.635      | 0.449      | 0.569      |
| λ                  | 0.852      | 0.776      | 0.762      | 0.686      |
| Log Lik.           | -21113.36  | -20357.59  | -19928.92  | -29908.09  |
| AIC                | 42248.71   | 40737.18   | 39879.85   | 41838.17   |

*Note:* *p<0.1; **p<0.05; ***p<0.01
Table D21: Farmers’ revenues, SAR

| Dependent variable: | ln(pst/oth) | ln(agr/oth) | ln(for/oth) | ln(urb/oth) |
|---------------------|------------|------------|------------|------------|
| Constant            | 0.176      | 0.232      | 0.621      | -2.107     |
|                     | (0.160)    | (0.146)    | (0.134)    | (0.168)    |
| Farmers’ revenues   | -0.509     | -0.170     | -0.801     | -0.023     |
|                     | (0.167)    | (0.240)    | (0.164)    | (0.027)    |
| For revenue         | 0.003      | 0.001      | 0.002      | 0.003      |
|                     | (0.0005)   | (0.001)    | (0.0004)   | (0.0005)   |
| Pop density         | -0.0002    | -0.0002    | -0.0003    | 0.0002     |
|                     | (0.0001)   | (0.00005)  | (0.00005)  | (0.0001)   |
| Pop revenues        | -0.020     | 0.034      | 0.024      | 0.154      |
|                     | (0.008)    | (0.011)    | (0.006)    | (0.009)    |
| Slope               | -0.045     | -0.102     | -0.024     | -0.099     |
|                     | (0.005)    | (0.005)    | (0.003)    | (0.005)    |
| TEXT2               | 0.400      | 0.656      | 0.012      | 0.465      |
|                     | (0.085)    | (0.078)    | (0.089)    | (0.089)    |
| TEXT3               | 0.705      | 1.028      | 0.287      | 0.734      |
|                     | (0.090)    | (0.084)    | (0.040)    | (0.092)    |
| TEXT4               | 0.947      | 1.205      | 0.189      | 0.565      |
|                     | (0.133)    | (0.124)    | (0.095)    | (0.135)    |

$R^2$ 0.67 0.638 0.454 0.567
$p$ 0.835 0.744 0.751 0.652
Log Lik. -21086.91 -20321.34 -19893.53 -20931.27
AIC. 42195.83 40664.67 39809.05 41884.55

Note: *p<0.1; **p<0.05; ***p<0.01
### Table D22: Farmers' revenues, SDM

| Dependent variable: | ln(pst/oth) | ln(agr/oth) | ln(for/oth) | ln(urb/oth) |
|---------------------|-------------|-------------|-------------|-------------|
| **Constant**        | 0.398***    | 0.126***    | 0.975***    | -1.966***   |
|                     | (0.148)     | (0.047)     | (0.181)     | (0.222)     |
| **Farmers' revenues** | -1.858     | -1.973***   | -1.640***   | -3.824**    |
|                     | (0.638)     | (0.613)     | (1.787)     |             |
| **For revenue**     | -0.002      | -0.002      | -0.004      | 0.001       |
|                     | (0.001)     | (0.001)     |             |             |
| **Pop density**     | -0.0002***  | -0.0002***  | -0.0003***  | 0.0004***   |
|                     | (0.00003)   | (0.0001)    | (0.00005)   | (0.0001)    |
| **Pop revenues**    | 0.054***    | 0.080***    | 0.066***    | 0.259***    |
|                     | (0.017)     | (0.016)     | (0.013)     | (0.018)     |
| **Slope**           | -0.107***   | -0.196***   | 0.028       | -0.203***   |
|                     | (0.016)     | (0.015)     |             | (0.016)     |
| **TEXT2**           | 0.433***    | 0.528***    | 0.137*      | 0.237**     |
|                     | (0.074)     | (0.077)     | (0.071)     | (0.121)     |
| **TEXT3**           | 0.839***    | 0.974***    | 0.331***    | 0.460***    |
|                     | (0.120)     | (0.083)     | (0.058)     | (0.146)     |
| **TEXT4**           | 1.093***    | 1.208***    | 0.194       | 0.101       |
|                     | (0.102)     | (0.121)     | (0.144)     | (0.222)     |
| lag.Farmers' revenues | 1.516      | 1.965***    | 0.848       | 4.123**     |
|                     | (0.665)     | (0.614)     | (1.817)     |             |
| lag.For revenue     | 0.005***    | 0.003**     | 0.006       | 0.001       |
|                     | (0.001)     | (0.001)     |             |             |
| lag.Pop density     | 0.0001      | -0.0001     | -0.0001     | -0.0002*    |
|                     | (0.0001)    |             |             | (0.0001)    |
| lag.Pop revenues    | -0.105***   | -0.061***   | -0.059***   | -0.148***   |
|                     | (0.024)     | (0.018)     | (0.014)     | (0.023)     |
| lag.Slope           | 0.068***    | 0.107***    | -0.057      | 0.121***    |
|                     | (0.016)     | (0.016)     |             | (0.018)     |
| lag.TEXT2           | -0.084      | 0.187**     | -0.295***   | 0.296*      |
|                     | (0.076)     | (0.072)     | (0.170)     |             |
| lag.TEXT3           | -0.211      | 0.070       | -0.104      | 0.351*      |
|                     | (0.146)     | (0.061)     |             | (0.191)     |
| lag.TEXT4           | -0.258      | -0.093      | -0.079      | 0.859***    |
|                     | (0.072)     | (0.146)     |             | (0.303)     |
| ρ                   | 0.837***    | 0.756***    | 0.747***    | 0.674***    |

| N          | 8818 |
| R²         | 0.672 | 0.64 | 0.456 | 0.572 |
| Log Lik.   | -21063.93 | -20290.27 | -19875.94 | -20874.48 |
| AIC        | 42165.87 | 40618.53 | 39789.88 | 41786.96 |

*Note:* *p<0.1; **p<0.05; ***p<0.01
Table D23: Farmers’ revenues, SDEM

| Dependent variable: | ln(pst/oth) (1) | ln(agr/oth) (2) | ln(for/oth) (3) | ln(urb/oth) (4) |
|---------------------|----------------|----------------|----------------|----------------|
| Constant            | 2.733***       | 2.035***       | 3.861***       | −5.207***      |
|                     | (0.916)        | (0.629)        | (0.583)        | (0.541)        |
| Farmers’ revenues   | −1.986         | −1.547         | −1.849         | −3.369*        |
|                     | (1.694)        | (1.586)        | (1.518)        | (1.727)        |
| For revenue         | 0.001          | −0.0005        | −0.002         | 0.003          |
|                     | (0.003)        | (0.003)        | (0.003)        | (0.003)        |
| Pop density         | −0.0002***     | −0.0002***     | −0.0003***     | 0.0004***      |
|                     | (0.0001)       | (0.0001)       | (0.0001)       | (0.0001)       |
| Pop revenues        | 0.039**        | 0.085***       | 0.072***       | 0.264***       |
|                     | (0.017)        | (0.016)        | (0.015)        | (0.017)        |
| Slope               | −0.119***      | −0.206***      | 0.012          | −0.206***      |
|                     | (0.015)        | (0.014)        | (0.013)        | (0.015)        |
| TEXT2               | 0.518***       | 0.672***       | 0.081          | 0.342***       |
|                     | (0.117)        | (0.105)        | (0.100)        | (0.112)        |
| TEXT3               | 0.974***       | 1.190***       | 0.361***       | 0.621***       |
|                     | (0.135)        | (0.122)        | (0.116)        | (0.130)        |
| TEXT4               | 1.317***       | 1.426***       | 0.213          | 0.313*         |
|                     | (0.186)        | (0.169)        | (0.161)        | (0.181)        |
| lag.Farmers’ revenues | −0.098        | 1.532          | −0.856         | 4.196**        |
|                     | (2.017)        | (1.748)        | (1.663)        | (1.839)        |
| lag.For revenue     | 0.016***       | 0.006*         | 0.012***       | 0.004          |
|                     | (0.004)        | (0.003)        | (0.003)        | (0.004)        |
| lag.Pop density     | −0.0005**      | −0.001***      | −0.001***      | −0.00001       |
|                     | (0.0002)       | (0.0002)       | (0.0002)       | (0.0002)       |
| lag.Pop revenues    | −0.239***      | −0.053*        | −0.084***      | 0.070**        |
|                     | (0.038)        | (0.031)        | (0.029)        | (0.030)        |
| lag.Slope           | −0.117***      | −0.151***      | −0.121***      | −0.049**       |
|                     | (0.026)        | (0.020)        | (0.019)        | (0.020)        |
| lag.TEXT2           | 0.543*         | 1.086***       | −0.380         | 0.644**        |
|                     | (0.320)        | (0.262)        | (0.247)        | (0.253)        |
| lag.TEXT3           | 0.945***       | 1.776***       | 0.330          | 1.158***       |
|                     | (0.359)        | (0.288)        | (0.271)        | (0.274)        |
| lag.TEXT4           | 1.778***       | 2.109***       | 0.356          | 1.861***       |
|                     | (0.514)        | (0.427)        | (0.402)        | (0.417)        |
| λ                   | 0.841***       | 0.76***        | 0.75***        | 0.677***       |

| N                   | 8818           | 8672           | 8456           | 8720           |
| R²                  | 0.672          | 0.64           | 0.456          | 0.572          |
| Log Lik.            | −21063.24      | −20289.72      | −19877.62      | −20880.66      |
| AIC                 | 42164.48       | 40817.44       | 39793.24       | 41799.31       |

Note: *p<0.1; **p<0.05; ***p<0.01
Table D24: Farmers’ revenues, SAC

|                          | ln(pst/oth) | ln(agr/oth) | ln(for/oth) | ln(urb/oth) |
|--------------------------|-------------|-------------|-------------|-------------|
| (Intercept)              | 0.1491      | 0.1112      | 0.3762      | -3.8821***  |
|                          | (NaN)       | (0.1510)    | (NaN)       | (0.5680)    |
| Farmers’ revenues        | -0.3049     | -0.1567     | -0.4825***  | 0.8110      |
|                          | (NaN)       | (NaN)       | (0.1260)    | (0.6630)    |
| For revenue              | 0.0012***   | 4e-04       | 0.0012***   | 0.0099***   |
|                          | (0.0000)    | (NaN)       | (0.0000)    | (0.0020)    |
| Pop density              | -1e-04***   | -2e-04***   | -3e-04***   | 4e-04***    |
|                          | (0.0000)    | (0.0000)    | (0.0000)    | (0.0000)    |
| Pop revenues             | -0.0162     | 0.0269***   | 0.0141***   | 0.2897***   |
|                          | (NaN)       | (0.0040)    | (0.0050)    | (0.0160)    |
| Slope                    | -0.0256***  | -0.0778***  | -0.0143***  | -0.2631***  |
|                          | (0.0020)    | (0.0060)    | (0.0030)    | (0.0140)    |
| TEXT2                    | 0.2679***   | 0.5663***   | -0.0187     | 0.2915***   |
|                          | (0.0100)    | (0.0610)    | (NaN)       | (0.1110)    |
| TEXT3                    | 0.4537***   | 0.8582***   | 0.1830***   | 0.6093***   |
|                          | (0.0500)    | (0.0710)    | (0.0390)    | (0.1320)    |
| TEXT4                    | 0.6603***   | 1.0230***   | 0.0976      | 0.3472*     |
|                          | (0.0810)    | (0.1110)    | (0.1040)    | (0.1810)    |

|                     |       |       |       |       |
| R²                   | 0.677 | 0.639 | 0.461 | 0.572 |
| λ                    | -0.47 | -0.222 | -0.416 | 0.839*** |
| ρ                    | 0.917*** | 0.814*** | 0.868*** | -0.395 |
| Log Lik.             | -20992.65 | -20309.97 | -19834.74 | -20871.68 |
| AIC.                 | 42009.29 | 40643.94 | 39693.47 | 41767.36 |

Note: *p<0.1; **p<0.05; ***p<0.01
Table D25: Farmers’ revenues, GNS

| Dependent variable: | ln(pst/oth) | ln(agr/oth) | ln(for/oth) | ln(urb/oth) |
|---------------------|-------------|-------------|-------------|-------------|
| (Intercept)          | 5.0153***   | 3.8909***   | 0.5697***   | -0.9721***  |
|                     | (0.7970)    | (0.6730)    | (0.1250)    | (0.1400)    |
| Farmers’ revenues   | -2.1934*    | -1.5402***  | -1.6173     | -3.5296**   |
|                     | (1.1740)    | (0.1910)    | (NaN)       | (1.6000)    |
| For revenue         | 0.0017      | -1e-04      | -0.0033     | 3e-04       |
|                     | (NaN)       | (0.0000)    | (NaN)       | (0.0010)    |
| Pop density         | -3e-04***   | -3e-04***   | -3e-04***   | 3e-04***    |
|                     | (0.0000)    | (0.0000)    | (0.0000)    | (0.0000)    |
| Pop revenues        | 0.0204      | 0.0785***   | 0.0555***   | 0.2674***   |
|                     | (0.0150)    | (0.0150)    | (0.0140)    | (0.0180)    |
| Slope               | -0.1323***  | -0.2187**   | 0.0236      | -0.2080**   |
|                     | (0.0140)    | (0.0130)    | (NaN)       | (0.0160)    |
| TEXT2               | 0.4969***   | 0.6674***   | 0.1448**    | 0.1773**    |
|                     | (0.1060)    | (0.1020)    | (0.0140)    | (0.0690)    |
| TEXT3               | 0.9312***   | 1.2076***   | 0.3352      | 0.4134***   |
|                     | (0.1240)    | (0.1190)    | (NaN)       | (0.0620)    |
| TEXT4               | 1.3508***   | 1.5025***   | 0.2265***   | 0.1230      |
|                     | (0.1850)    | (0.1660)    | (0.0450)    | (NaN)       |
| lag.Farmers’ revenues | -1.3717     | 1.2544      | 1.1513      | 3.6604**    |
|                     | (1.0770)    | (NaN)       | (NaN)       | (1.6150)    |
| lag.For revenue     | 0.0173      | 0.0066***   | 0.0046      | 9e-04       |
|                     | (NaN)       | (0.0020)    | (NaN)       | (0.0010)    |
| lag.Pop density     | -7e-04***   | -8e-04***   | 1e-04       | -3e-04***   |
|                     | (0.0000)    | (0.0000)    | (NaN)       | (0.0000)    |
| lag.Pop revenues    | -0.2683***  | -0.0674**   | -0.0509***  | -0.2141***  |
|                     | (0.0440)    | (0.0330)    | (0.0140)    | (0.0210)    |
| lag.Slope           | -0.2141***  | -0.2673***  | -0.0404     | 0.1674***   |
|                     | (0.0340)    | (0.0270)    | (NaN)       | (0.0170)    |
| lag.TEXT2           | 0.5563      | 1.1574***   | -0.2461     | 0.1260      |
|                     | (NaN)       | (0.2880)    | (NaN)       | (0.0780)    |
| lag.TEXT3           | 0.9872      | 2.0533***   | -0.2099     | 0.0154      |
|                     | (NaN)       | (0.3340)    | (NaN)       | (0.0300)    |
| lag.TEXT4           | 2.2012***   | 2.7239***   | -0.1875***  | 0.4084      |
|                     | (0.3550)    | (0.4710)    | (0.0370)    | (NaN)       |

$R^2 = 0.68 \quad 0.644 \quad 0.462 \quad 0.579$

$\lambda = 0.929\quad 0.864\quad -0.409 \quad -0.496$

$\rho = -0.507 \quad -0.354 \quad 0.866 \quad 0.844$

Log Lik. = -20952.46 \quad -20252.19 \quad -19822.81 \quad -20798.85

AIC. = 41944.92 \quad 40544.38 \quad 39685.62 \quad 41637.7

Note: *p<0.1; **p<0.05; ***p<0.01
### Table D26: Hausman test for the difference between OLS and SEM estimates

| Proxy                  | ln(pst/oth) | ln(agr/oth) | ln(for/oth) | ln(urb/oth) |
|------------------------|-------------|-------------|-------------|-------------|
| **Land shadow price**  | 312.7065    | 325.6753    | 287.0825    | 106.8259    |
|                        | < 2.2e-16   | < 2.2e-16   | < 2.2e-16   | < 2.2e-16   |
| **Land prices**        | 315.5557    | 333.4682    | 289.641     | 115.9688    |
|                        | < 2.2e-16   | < 2.2e-16   | < 2.2e-16   | < 2.2e-16   |
| **Farmers’ revenues**  | 303.3948    | 330.8311    | 294.3477    | 113.4367    |
|                        | < 2.2e-16   | < 2.2e-16   | < 2.2e-16   | < 2.2e-16   |

### Table D27: LM test for residual spatial autocorrelation from SAR

| Proxy                  | ln(pst/oth) | ln(agr/oth) | ln(for/oth) | ln(urb/oth) |
|------------------------|-------------|-------------|-------------|-------------|
| **Land shadow price**  | 70.4738     | 7.4987      | 31.737      | 6.2782      |
|                        | < 2.22e-16  | 0.00617     | 0           | 0.01222     |
| **Land prices**        | 65.6626     | 7.6944      | 29.2527     | 5.9252      |
|                        | 0           | 0.00554     | 0           | 0.01493     |
| **Farmers’ revenues**  | 72.356      | 7.6126      | 30.3203     | 6.0478      |
|                        | < 2.22e-16  | 0.0058      | 0           | 0.01392     |

### Table D28: LM test for residual spatial autocorrelation from SDM

| Proxy                  | ln(pst/oth) | ln(agr/oth) | ln(for/oth) | ln(urb/oth) |
|------------------------|-------------|-------------|-------------|-------------|
| **Land shadow price**  | 75.0466     | 17.8209     | 26.335      | 25.2062     |
|                        | < 2.22e-16  | 2e-05       | 0           | 0           |
| **Land prices**        | 71.7574     | 18.3835     | 24.4982     | 25.9631     |
|                        | < 2.22e-16  | 2e-05       | 0           | 0           |
| **Farmers’ revenues**  | 78.1218     | 18.0562     | 25.2086     | 25.0459     |
|                        | < 2.22e-16  | 2e-05       | 0           | 0           |
### D2 Impacts of the variables in the SAR, SDM, SAC, and GNS

| Shadow price | Direct p-value | Indirect p-value | Total p-value |
|--------------|----------------|------------------|---------------|
| 0.042        | NaN            | 0.1              | 0.142         |
| 0.001        | NaN            | 0.002            | 0.003         |
| 0.036        | NaN            | 0.088            | 0.124         |
| -0.116       | NaN            | -0.281           | -0.398        |
| 0.753        | NaN            | 1.821            | 2.573         |
| 1.17         | NaN            | 2.832            | 4.002         |
| 1.383        | NaN            | 3.346            | 4.729         |

Table D29: Impacts of Shadow price on agricultural share for SAR

| Land price | Direct p-value | Indirect p-value | Total p-value |
|------------|----------------|------------------|---------------|
| 0.024      | NaN            | 0.058            | 0.082         |
| 0.001      | NaN            | 0.002            | 0.003         |
| 0.034      | NaN            | 0.083            | 0.117         |
| -0.117     | NaN            | -0.284           | -0.401        |
| 0.75       | NaN            | 1.817            | 2.567         |
| 1.168      | NaN            | 2.831            | 3.997         |
| 1.379      | NaN            | 3.341            | 4.727         |

Table D30: Impacts of Land prices on agricultural share for SAR

| Farmers' revenues | Direct p-value | Indirect p-value | Total p-value |
|-------------------|----------------|------------------|---------------|
| -0.193            | 0.536          | -0.468           | 0.536         |
| 0.001             | 0.193          | 0.002            | 0.192         |
| -0.000            | 0.000          | -0.001           | 0.000         |
| 0.038             | 0.003          | 0.092            | 0.131         |
| -0.117            | 0.000          | -0.283           | -0.399        |
| 0.747             | 0.000          | 1.810            | 2.557         |
| 1.170             | 0.000          | 2.837            | 4.006         |
| 1.372             | 0.000          | 3.327            | 4.699         |

Table D31: Impacts of Agri revenue on agricultural share for SAR
Table D32: Impacts of Shadow price on agricultural share for the Durbin model

|                          | Direct p-value | Indirect p-value | Total p-value |
|--------------------------|----------------|------------------|---------------|
| Shadow price             | 1.144          | -0.829           | 0.315         |
| For revenue              | -0.001         | NaN              | 0.005         |
| Pop density              | 0              | -0.001           | 0.001         |
| Pop revenues             | 0.079          | -0.008           | 0.071         |
| Slope                    | -0.204         | NaN              | -0.363        |
| TEXT2                    | 0.645          | 2.297            | 2.941         |
| TEXT3                    | 1.135          | 3.126            | 4.261         |
| TEXT4                    | 1.377          | 3.228            | 4.604         |

Table D33: Impacts of Land prices on agricultural share for the Durbin model

|                          | Direct p-value | Indirect p-value | Total p-value |
|--------------------------|----------------|------------------|---------------|
| Land price               | 0.173          | -0.202           | -0.029        |
| For revenue              | -0.003         | 0.008            | 0.005         |
| Pop density              | 0              | -0.001           | -0.001        |
| Pop revenues             | 0.077          | -0.002           | 0.075         |
| Slope                    | -0.201         | -0.159           | -0.361        |
| TEXT2                    | 0.636          | 2.285            | 2.921         |
| TEXT3                    | 1.124          | 3.16             | 4.283         |
| TEXT4                    | 1.366          | 3.19             | 4.556         |

Table D34: Impacts of Agri revenue on agricultural share for the Durbin model

|                          | Direct p-value | Indirect p-value | Total p-value |
|--------------------------|----------------|------------------|---------------|
| Farmers’ revenues        | -1.881         | 1.849            | -0.031        |
| For revenue              | -0.001         | 0.006            | 0.005         |
| Pop density              | 0              | -0.001           | -0.001        |
| Pop revenues             | 0.079          | -0.003           | 0.077         |
| Slope                    | -0.204         | -0.159           | -0.363        |
| TEXT2                    | 0.642          | 2.289            | 2.931         |
| TEXT3                    | 1.13           | 3.147            | 4.277         |
| TEXT4                    | 1.367          | 3.201            | 4.559         |

Table D35: Impacts of Shadow price on agricultural share for SAC

|                          | Direct p-value | Indirect p-value | Total p-value |
|--------------------------|----------------|------------------|---------------|
| Shadow price             | 0.015          | NaN              | 0.067         |
| For revenue              | 0              | NaN              | 0.002         |
| Pop density              | 0              | -0.001           | -0.001        |
| Pop revenues             | 0.031          | 0.106            | 0.137         |
| Slope                    | -0.093         | -0.322           | -0.415        |
| TEXT2                    | 0.682          | 2.37             | 3.052         |
| TEXT3                    | 1.026          | 3.562            | 4.588         |
| TEXT4                    | 1.233          | 4.284            | 5.517         |

Table D36: Impacts of Land prices on agricultural share for SAC

|                          | Direct p-value | Indirect p-value | Total p-value |
|--------------------------|----------------|------------------|---------------|
| Land price               | 0.028          | 0.233            | 0.238         |
| For revenue              | 0.000          | 0.167            | 0.170         |
| Pop density              | -0.000         | 0.001            | -0.001        |
| Pop revenues             | 0.028          | 0.096            | 0.124         |
| Slope                    | -0.093         | -0.327           | -0.420        |
| TEXT2                    | 0.678          | 2.372            | 3.050         |
| TEXT3                    | 1.019          | 3.564            | 4.583         |
| TEXT4                    | 1.227          | 4.290            | 5.517         |
### Table D37: Impacts of Agri revenue on agricultural share for SAC

|                | Direct p-value | Indirect p-value | Total p-value |
|----------------|----------------|------------------|---------------|
| Farmers' revenues | -0.187 NaN     | -0.652 NaN       | -0.838 NaN    |
| For revenue      | 0.001 NaN      | 0.002 NaN        | 0.002 NaN     |
| Pop density      | 0   NaN        | -0.001 NaN       | -0.001 NaN    |
| Pop revenues     | 0.032 NaN      | 0.112 NaN        | 0.144 NaN     |
| Slope            | -0.093 NaN     | -0.324 NaN       | -0.417 NaN    |
| TEXT2            | 0.676 NaN      | 2.356 NaN        | 3.031 NaN     |
| TEXT3            | 1.024 NaN      | 3.57 NaN         | 4.594 NaN     |
| TEXT4            | 1.221 NaN      | 4.255 NaN        | 5.476 NaN     |

### Table D38: Impacts of Shadow price on agricultural share for GNS

|                | Direct p-value | Indirect p-value | Total p-value |
|----------------|----------------|------------------|---------------|
| Shadow price   | 1.389 0.020    | 0.846 0.072      | 0.543 0.274   |
| For revenue    | 0.001 0.684    | 0.005 0.029      | 0.005 0.004   |
| Pop density    | -0.000 0.000   | -0.001 0.000     | -0.001 0.000  |
| Pop revenues   | 0.082 0.000    | -0.077 0.004     | 0.005 0.789   |
| Slope          | -0.211 0.000   | -0.147 0.000     | -0.358 0.000  |
| TEXT2          | 0.632 0.000    | 0.725 0.002      | 1.357 0.000   |
| TEXT3          | 1.142 0.000    | 1.264 0.000      | 2.407 0.000   |
| TEXT4          | 1.418 0.000    | 1.717 0.000      | 3.135 0.000   |

### Table D39: Impacts of Land prices on agricultural share for GNS

|                | Direct p-value | Indirect p-value | Total p-value |
|----------------|----------------|------------------|---------------|
| Land price     | 0.121 NaN      | -0.013 NaN       | 0.109 NaN     |
| For revenue    | -0.001 NaN     | 0.006 NaN        | 0.004 NaN     |
| Pop density    | 0   NaN        | -0.001 NaN       | -0.001 NaN    |
| Pop revenues   | 0.08 NaN       | -0.083 NaN       | -0.003 NaN    |
| Slope          | -0.21 NaN      | -0.15 NaN        | -0.359 NaN    |
| TEXT2          | 0.623 NaN      | 0.711 NaN        | 1.334 NaN     |
| TEXT3          | 1.132 NaN      | 1.26 NaN         | 2.392 NaN     |
| TEXT4          | 1.408 NaN      | 1.702 NaN        | 3.11 NaN      |

### Table D40: Impacts of Agri revenue on agricultural share for GNS

|                | Direct p-value | Indirect p-value | Total p-value |
|----------------|----------------|------------------|---------------|
| Farmers' revenues | -1.617 NaN | 1.406 NaN | -0.211 NaN |
| For revenue      | 0   NaN | 0.005 NaN | 0.005 NaN |
| Pop density      | 0   NaN | -0.001 NaN | -0.001 NaN |
| Pop revenues     | 0.083 NaN | -0.074 NaN | 0.008 NaN |
| Slope            | -0.211 NaN | -0.148 NaN | -0.359 NaN |
| TEXT2            | 0.628 NaN | 0.72 NaN | 1.348 NaN |
| TEXT3            | 1.138 NaN | 1.27 NaN | 2.409 NaN |
| TEXT4            | 1.409 NaN | 1.713 NaN | 3.122 NaN |

Table D40: Impacts of Agri revenue on agricultural share for GNS
### D3 Elasticities

| Agr rent / Model | Min. | 1st Qu. | Median | Mean  | 3rd Qu. | Max   | St.Dev |
|-----------------|------|---------|--------|-------|--------|-------|--------|
| **Shadow price** |      |         |        |       |        |       |        |
| OLS             | 0    | 0.235   | 0.264  | 0.31  | 0.367  | 0.555 | 0.106  |
| SLX             | 0    | 0.158   | 0.178  | 0.209 | 0.247  | 0.374 | 0.072  |
| SEM             | 0.001| 0.387   | 0.435  | 0.511 | 0.605  | 0.914 | 0.175  |
| SAR             | 0    | 0.062   | 0.07   | 0.082 | 0.097  | 0.146 | 0.028  |
| SDM             | 0    | 0.137   | 0.154  | 0.181 | 0.214  | 0.324 | 0.062  |
| SDEM            | 0.01 | 0.21    | 0.236  | 0.277 | 0.328  | 0.496 | 0.095  |
| SAC             | 0    | 0.029   | 0.033  | 0.038 | 0.045  | 0.069 | 0.013  |
| GNS             | 0    | 0.236   | 0.266  | 0.312 | 0.37   | 0.559 | 0.107  |
| **Land price**  |      |         |        |       |        |       |        |
| OLS             | -0.441| -0.09  | -0.068 | -0.074| -0.052 | 0     | 0.035  |
| SLX             | -0.907| -0.186 | -0.139 | -0.153| -0.108 | 0     | 0.072  |
| SEM             | 0      | 0.104  | 0.134  | 0.148 | 0.18   | 0.878 | 0.069  |
| SAR             | 0      | 0.152  | 0.196  | 0.216 | 0.262  | 1.279 | 0.101  |
| SDM             | -0.444| -0.091 | -0.068 | -0.075| -0.053 | 0     | 0.035  |
| SDEM            | 0      | 0.09   | 0.116  | 0.128 | 0.155  | 0.758 | 0.06   |
| SAC             | 0      | 0.229  | 0.295  | 0.325 | 0.395  | 1.927 | 0.152  |
| GNS             | 0      | 0.201  | 0.259  | 0.285 | 0.346  | 1.691 | 0.133  |
| **Farmers' revenues** |      |         |        |       |        |       |        |
| OLS             | 0.078 | 0.229  | 0.251  | 0.266 | 0.31   | 0.399 | 0.063  |
| SLX             | 0.072 | 0.211  | 0.231  | 0.245 | 0.285  | 0.367 | 0.058  |
| SEM             | -0.124| -0.096 | -0.078 | -0.083| -0.071 | -0.024| 0.02   |
| SAR             | -0.645| -0.501 | -0.406 | -0.43 | -0.37  | -0.126| 0.101  |
| SDM             | -0.03 | -0.024 | -0.019 | -0.02 | -0.017 | -0.006| 0.005  |
| SDEM            | -0.014| -0.011 | -0.009 | -0.01 | -0.008 | -0.003| 0.002  |
| SAC             | -0.818| -0.635 | -0.515 | -0.546| -0.47  | -0.16 | 0.129  |
| GNS             | -0.206| -0.16  | -0.13  | -0.137| -0.118 | -0.04 | 0.032  |

Table D41: Elasticities of agricultural land with respect to different agricultural rent proxies
### Table D4.2: In-sample estimation fit

|          | \(s_{ot} \) | \(s_{ag} \) | \(s_{pa} \) | \(s_{lo} \) | \(s_{ur} \) |
|----------|-------------|-------------|-------------|-------------|-------------|
| **Shadow Price** |             |             |             |             |             |
| OLS      | 0.1211      | 0.2340      | 0.1882      | 0.1882      | 0.0676      |
| SEM      | 0.0778      | 0.1218      | 0.0772      | 0.1141      | 0.0545      |
| SAR      | 0.0766      | 0.1269      | 0.0779      | 0.1176      | 0.0544      |
| SDM      | 0.0767      | 0.1234      | 0.0769      | 0.1139      | 0.0539      |
| SAC      | 0.0741      | 0.1288      | 0.0744      | 0.1129      | 0.0583      |
| GNS      | 0.0741      | 0.1190      | 0.0736      | 0.1093      | 0.0515      |
| SLX      | 0.1197      | 0.2289      | 0.1860      | 0.1822      | 0.0675      |
| SDEM     | 0.0772      | 0.1235      | 0.0776      | 0.1137      | 0.0531      |
| GNS      | 0.0741      | 0.1190      | 0.0736      | 0.1093      | 0.0515      |

|          |             |             |             |             |             |
| **Land price** |             |             |             |             |             |
| OLS      | 0.1230      | 0.2294      | 0.1850      | 0.1865      | 0.0667      |
| SEM      | 0.0781      | 0.1204      | 0.0768      | 0.1135      | 0.0546      |
| SAR      | 0.0770      | 0.1253      | 0.0779      | 0.1166      | 0.0542      |
| SDM      | 0.0768      | 0.1222      | 0.0769      | 0.1133      | 0.0543      |
| SAC      | 0.0744      | 0.1277      | 0.0745      | 0.1120      | 0.0596      |
| GNS      | 0.0743      | 0.1175      | 0.0729      | 0.1086      | 0.0520      |
| SLX      | 0.1213      | 0.2240      | 0.1834      | 0.1805      | 0.0673      |
| SDEM     | 0.0774      | 0.1222      | 0.0772      | 0.1130      | 0.0533      |
| GNS      | 0.0743      | 0.1175      | 0.0729      | 0.1086      | 0.0520      |

|          |             |             |             |             |             |
| **Farmers' revenues** |             |             |             |             |             |
| OLS      | 0.1248      | 0.2348      | 0.1942      | 0.1921      | 0.0660      |
| SEM      | 0.0781      | 0.1214      | 0.0775      | 0.1144      | 0.0544      |
| SAR      | 0.0769      | 0.1264      | 0.0783      | 0.1177      | 0.0543      |
| SDM      | 0.0771      | 0.1230      | 0.0775      | 0.1140      | 0.0540      |
| SAC      | 0.0742      | 0.1285      | 0.0746      | 0.1126      | 0.0583      |
| SLX      | 0.1241      | 0.2289      | 0.1917      | 0.1854      | 0.0663      |
| SDEM     | 0.0775      | 0.1232      | 0.0781      | 0.1139      | 0.0531      |
| GNS      | 0.0739      | 0.1185      | 0.0745      | 0.1093      | 0.0517      |
### D5 Moran’s I on models residuals (two-sided)

| Proxy / Spec. | ln(pst/oth) pval | ln(agr/oth) pval | ln(for/oth) pval | ln(urb/oth) pval |
|---------------|------------------|------------------|------------------|------------------|
| **Shadow price** | | | | |
| OLS | 0.61111 | < 2.22e-16 | 0.44531 | < 2.22e-16 | 0.44174 | < 2.22e-16 | 0.37507 | < 2.22e-16 |
| SEM | -0.05299 | < 2.22e-16 | -0.02812 | 0 | -0.03158 | 0 | -0.02933 | 0 |
| SAR | -0.04623 | < 2.22e-16 | -0.01508 | 0.00655 | -0.03102 | 0 | -0.0138 | 0.01292 |
| SDM | -0.0477 | < 2.22e-16 | -0.02325 | 3e-05 | -0.02826 | 0 | -0.02765 | 0 |
| SAC | 0.00037 | 0.9296 | 0.00198 | 0.70402 | 0.00032 | 0.93759 | -0.01342 | 0.01565 |
| SLX | 0.61406 | < 2.22e-16 | 0.44844 | < 2.22e-16 | 0.44292 | < 2.22e-16 | 0.37248 | < 2.22e-16 |
| SDEM | -0.04931 | < 2.22e-16 | -0.02518 | 1e-05 | -0.02919 | 0 | -0.02734 | 0 |
| **Land price** | | | | |
| OLS | 0.60205 | < 2.22e-16 | 0.44535 | < 2.22e-16 | 0.43376 | < 2.22e-16 | 0.37541 | < 2.22e-16 |
| SEM | -0.05174 | < 2.22e-16 | -0.02845 | 0 | -0.03035 | 0 | -0.02967 | 0 |
| SAR | -0.04462 | 0 | -0.01527 | 0.00588 | -0.02978 | 0 | -0.02866 | 0 |
| SDM | -0.04665 | < 2.22e-16 | -0.02361 | 2e-05 | -0.02725 | 0 | -0.02806 | 0 |
| SAC | 0.00057 | 0.90184 | 0.00198 | 0.70326 | 0.00047 | 0.91617 | -0.01345 | 0.01538 |
| SLX | 0.60427 | < 2.22e-16 | 0.44764 | < 2.22e-16 | 0.43476 | < 2.22e-16 | 0.37224 | < 2.22e-16 |
| SDEM | -0.04838 | < 2.22e-16 | -0.02541 | 0 | -0.0282 | 0 | -0.02754 | 0 |
| GNS | -0.00173 | 0.76911 | -0.00102 | 0.86863 | -0.00039 | 0.95951 | -9e-04 | 0.8866 |
| **Farmers’ revenues** | | | | |
| OLS | 0.61779 | < 2.22e-16 | 0.44522 | < 2.22e-16 | 0.4366 | < 2.22e-16 | 0.37352 | < 2.22e-16 |
| SEM | -0.05313 | < 2.22e-16 | -0.02824 | 0 | -0.03072 | 0 | -0.02906 | 0 |
| SAR | -0.04684 | < 2.22e-16 | -0.01519 | 0.00615 | -0.03032 | 0 | -0.01354 | 0.0147 |
| SDM | -0.04867 | < 2.22e-16 | -0.0234 | 2e-05 | -0.02765 | 0 | -0.02756 | 0 |
| SAC | 3e-04 | 0.94039 | 0.00198 | 0.70365 | 0.00038 | 0.92871 | -0.01359 | 0.01436 |
| SLX | 0.62109 | < 2.22e-16 | 0.44825 | < 2.22e-16 | 0.4369 | < 2.22e-16 | 0.3793 | < 2.22e-16 |
| SDEM | -0.05029 | < 2.22e-16 | -0.02529 | 0 | -0.02838 | 0 | -0.02725 | 0 |
| GNS | -0.00186 | 0.75092 | -0.00991 | 0.88474 | 0.00049 | 0.91263 | -0.00069 | 0.91622 |

Table D43: Moran’s I of the residuals
### Table D44: Lagrange multiplier tests (OLS Model)

| Proxy          | LM Test | Models | ln(pst/oth) | ln(agr/oth) | ln(for/oth) | ln(urb/oth) |
|----------------|---------|--------|-------------|-------------|-------------|-------------|
| Shadow price   |         |        |             |             |             |             |
| L Merr         | 12316.45 1 0e+00 | 6539.94 1 0e+00 | 6435.5 1 0e+00 | 4639.46 1 0e+00 |
| L Lag          | 12220.83 1 0e+00 | 6326.48 1 0e+00 | 6558.38 1 0e+00 | 4386.88 1 0e+00 |
| RLMerr         | 288.74 1 0e+00 | 388.54 1 0e+00 | 15.13 1 1.003e-04 | 325.31 1 0e+00 |
| RLMlag         | 193.12 1 0e+00 | 175.08 1 0e+00 | 138.01 1 0e+00 | 72.73 1 0e+00 |
| SARMA          | 12509.57 2 0e+00 | 6715.02 2 0e+00 | 6573.51 2 0e+00 | 4712.19 2 0e+00 |
| Land prices    |         |        |             |             |             |             |
| L Merr         | 11953.76 1 0e+00 | 6541.02 1 0e+00 | 6205.16 1 0e+00 | 4647.8 1 0e+00 |
| L Lag          | 11844.58 1 0e+00 | 6334.06 1 0e+00 | 6319.84 1 0e+00 | 4378.88 1 0e+00 |
| RLMerr         | 293.5 1 0e+00 | 386.85 1 0e+00 | 19.32 1 1.104e-05 | 338 1 0e+00 |
| RLMlag         | 184.32 1 0e+00 | 179.9 1 0e+00 | 134 1 0e+00 | 69.08 1 1.11e-16 |
| SARMA          | 12138.08 2 0e+00 | 6720.92 2 0e+00 | 6339.16 2 0e+00 | 4716.88 2 0e+00 |
| Farmers’ revenues |         |        |             |             |             |             |
| L Merr         | 12587.16 1 0e+00 | 6537.24 1 0e+00 | 6286.63 1 0e+00 | 4601.14 1 0e+00 |
| L Lag          | 12469.42 1 0e+00 | 6327.88 1 0e+00 | 6422.28 1 0e+00 | 4341.44 1 0e+00 |
| RLMerr         | 295.65 1 0e+00 | 387.84 1 0e+00 | 13.63 1 2.23e-04 | 325.52 1 0e+00 |
| RLMlag         | 177.91 1 0e+00 | 178.47 1 0e+00 | 149.28 1 0e+00 | 65.82 1 4.441e-16 |
| SARMA          | 12765.07 2 0e+00 | 6715.72 2 0e+00 | 6435.91 2 0e+00 | 4666.97 2 0e+00 |
Table D45: Lagrange multiplier tests (SLX Model)

| Proxy            | LM Test | ln(pst/oth) | df | p-value | ln(agr/oth) | df | p-value | ln(for/oth) | df | p-value | ln(urb/oth) | df | p-value |
|------------------|---------|-------------|----|---------|-------------|----|---------|-------------|----|---------|-------------|----|---------|
| **Shadow price** | L Merr  | 12435.72    | 1  | 0e+00   | 6632.2      | 1  | 0e+00   | 6469.87     | 1  | 0e+00   | 4575.67     | 1  | 0e+00   |
|                  | L Llag  | 12499.14    | 1  | 0e+00   | 6651.46     | 1  | 0e+00   | 6488.71     | 1  | 0e+00   | 4624.34     | 1  | 0e+00   |
|                  | RLMerr  | 11.02       | 1  | 9.037e-04 | 8.68        | 1  | 3.224e-03 | 4.52        | 1  | 3.351e-02 | 3.68        | 1  | 5.505e-02 |
|                  | RLMlag  | 74.43       | 1  | 0e+00   | 27.94       | 1  | 1.253e-07| 23.36       | 1  | 1.346e-06 | 52.35       | 1  | 4.654e-13 |
|                  | SARMA   | 12510.15    | 2  | 0e+00   | 6660.14     | 2  | 0e+00   | 6493.23     | 2  | 0e+00   | 4628.02     | 2  | 0e+00   |
| **Land prices**  | L Merr  | 12042.43    | 1  | 0e+00   | 6608.43     | 1  | 0e+00   | 6233.82     | 1  | 0e+00   | 4569.78     | 1  | 0e+00   |
|                  | L Llag  | 12115.76    | 1  | 0e+00   | 6648.84     | 1  | 0e+00   | 6258.39     | 1  | 0e+00   | 4629.5      | 1  | 0e+00   |
|                  | RLMerr  | 7.41        | 1  | 6.472e-03 | 3.2         | 1  | 7.376e-02 | 2.05        | 1  | 1.52e-01 | 6.97        | 1  | 8.288e-03 |
|                  | RLMlag  | 80.75       | 1  | 0e+00   | 43.61       | 1  | 4.014e-11| 26.62       | 1  | 2.473e-07| 66.69       | 1  | 3.331e-16 |
|                  | SARMA   | 12123.17    | 2  | 0e+00   | 6652.04     | 2  | 0e+00   | 6260.44     | 2  | 0e+00   | 4636.47     | 2  | 0e+00   |
| **Farmers' revenues** | L Merr  | 12722.02    | 1  | 0e+00   | 6626.52     | 1  | 0e+00   | 6295.33     | 1  | 0e+00   | 4537.55     | 1  | 0e+00   |
|                  | L Llag  | 12769.49    | 1  | 0e+00   | 6649.84     | 1  | 0e+00   | 6328.47     | 1  | 0e+00   | 4587.44     | 1  | 0e+00   |
|                  | RLMerr  | 13.91       | 1  | 1.914e-04 | 7.59        | 1  | 5.858e-03 | 1.58        | 1  | 2.088e-01 | 3.85        | 1  | 4.98e-02 |
|                  | RLMlag  | 61.39       | 1  | 4.663e-15| 30.92       | 1  | 2.686e-08| 34.72       | 1  | 3.805e-09| 53.73       | 1  | 2.298e-13 |
|                  | SARMA   | 12783.41    | 2  | 0e+00   | 6657.44     | 2  | 0e+00   | 6330.05     | 2  | 0e+00   | 4591.29     | 2  | 0e+00   |