

# **Online supplementary material for:**

## **Revealed preferences for the composition of local government expenditures in US cities**

### **Supplementary Material A: Extended discussion on the estimation strategy**

The five-year time-span means that there is an issue of overlapping data. Overlapping estimations are generally not preferred because they create a moving average error term resulting in inefficient parameter estimates and biased hypothesis tests (Hansen & Hodrick, 1980). Harri and Brorsen (2009) discuss multiple ways in which to deal with overlapping data.

The most common solution is using non-overlapping estimations (Harri & Brorsen, 2009). While this yields unbiased and consistent parameter estimates, and valid hypothesis tests, it is not efficient as it throws away a lot of information. Another option to solve the moving average error term issue is to use overlapping data and account for the moving average term using heteroscedasticity and autocovariance consistent (HAC) estimators (Harri & Brorsen, 2009). A popular HAC estimator is Newey-West (Whitney K. Newey & West, 1987), which accounts for heteroscedasticity and autocorrelation of a moving average over a specified period of lags. The Driscoll-Kraay estimator expands on this estimator by also accounting for cross-sectional dependence (Driscoll & Kraay, 1998; Hoechle, 2007). A test for cross-sectional dependence (De Hoyos & Sarafidis, 2006; Pesaran, 2004) is performed to decide which of the two estimators is used. Pesaran's test of cross-sectional independence is significant with a value of -3.207 and a p-value of 0.0013. Therefore, the Driscoll-Kraay estimator is preferred and used for the overlapping estimations.

The Driscoll-Kraay estimator requires setting the truncation lag. The lag structure is arbitrarily set at six to account for the five-year lagged data setting, following previous work (Mark, 1995).

Another option is to use the first step of the Newey-West plug-in procedure (Hoechle, 2007; W. K. Newey & West, 1994), setting the lag  $m(T)$  at:

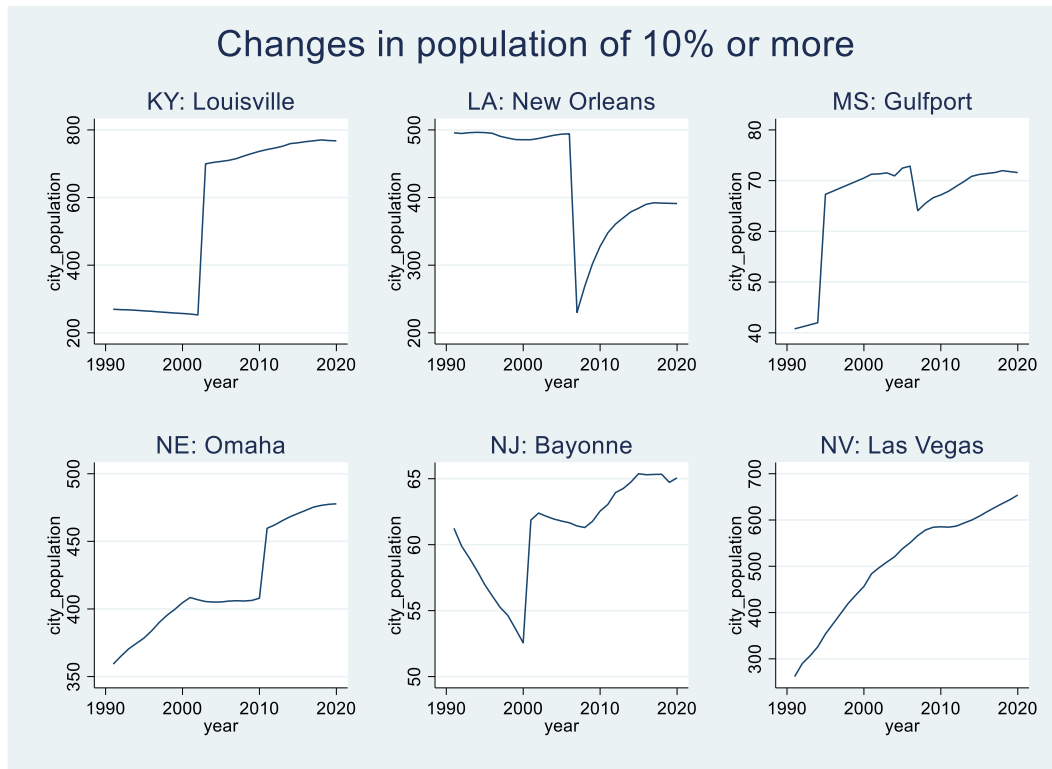
$$m(T) = \text{floor}[4(T/100)^{2/9}]$$

However, this simple rule tends to choose an  $m(T)$  that is often a bit small (Hoechle, 2007). Using this lag-setting yields similar estimation results that are slightly more significant. Therefore, the more cautionary lag settings results are included in this paper and the results from the lag setting using the Newey-West formula are included in the online supplementary material. The supplementary material also includes a five-year dynamic estimation with errors clustered at the State-level.

Finally, given the dynamic structure, there is the issue of the dynamic panel bias, also known as the Nickell bias (Nickell, 1981). The paper by Nickell shows that dynamic panel estimations using fixed effects result in biased results due to the demeaning process thereby creating a correlation between regressor and the error term. A common solution is to use GMM estimation to solve this issue. GMM estimation uses the first difference of the estimation in order to remove the constant and the individual effect. This still leaves a correlation between the differenced lagged dependent variable and the disturbance process, which may then be instrumented for using the individual fixed effects (Arellano & Bond, 1991; Caselli et al., 1996). However, as  $T$  becomes larger, the dynamic panel bias becomes insignificant. Furthermore, the number of instruments tend to explode (Roodman, 2009), which in practice may lead to highly unstable GMM estimates over alternative instrument sets (de Vos et al., 2015). Therefore, the Driscoll-Kraay estimator is preferred over GMM estimations.

## Supplementary Material B: Summary statistics

**Figure B1:** Cities with a change in population of 10% or more in at least one year



*Note: Louisville, New Orleans, Gulfport and Omaha are dropped because of sudden spikes in their population due to external reasons: Louisville (city-county merger), New Orleans (hurricane Katrina), Gulfport (annexation of large piece of land north of Gulfport), Omaha and Bayonne (other administrative reasons). Las Vegas is not dropped because it does not show a sudden spike in its population at any given time even though it increased over 10% in 1992. This increase is simply in line with its overall trend.*

**Table B1:** Summary statistics for all direct expenditure components

| Variable                             | N    | # zeroes | Mean  | Std. Dev. | Min   | Max   |
|--------------------------------------|------|----------|-------|-----------|-------|-------|
| Direct Expenditures                  | 3510 | 0        | 0.993 | 0.013     | 0.813 | 1.000 |
| 1. Education                         | 3510 | 0        | 0.327 | 0.093     | 0.015 | 0.669 |
| a) K-12 Education                    | 3510 | 4        | 0.316 | 0.092     | 0.000 | 0.661 |
| b) Higher Education                  | 3510 | 3020     | 0.002 | 0.008     | 0.000 | 0.148 |
| c) Libraries                         | 3510 | 42       | 0.009 | 0.006     | 0.000 | 0.070 |
| 2. Health & Welfare                  | 3510 | 41       | 0.080 | 0.070     | 0.000 | 0.564 |
| a) Hospitals                         | 3510 | 1786     | 0.031 | 0.057     | 0.000 | 0.507 |
| b) Health                            | 3510 | 78       | 0.024 | 0.021     | 0.000 | 0.193 |
| c) Public Welfare                    | 3510 | 252      | 0.025 | 0.029     | 0.000 | 0.178 |
| 3. Transportation                    | 3510 | 0        | 0.068 | 0.039     | 0.006 | 0.421 |
| a) Highways                          | 3510 | 0        | 0.041 | 0.025     | 0.003 | 0.211 |
| b) Parking Facilities                | 3510 | 660      | 0.003 | 0.005     | 0.000 | 0.064 |
| c) Airports                          | 3510 | 400      | 0.021 | 0.030     | 0.000 | 0.400 |
| d) Seaports                          | 3510 | 2313     | 0.002 | 0.010     | 0.000 | 0.219 |
| 4. Public Safety                     | 3510 | 0        | 0.118 | 0.029     | 0.041 | 0.244 |
| a) Police Protection                 | 3510 | 0        | 0.063 | 0.018     | 0.007 | 0.144 |
| b) Fire Protection                   | 3510 | 4        | 0.035 | 0.012     | 0.000 | 0.094 |
| c) Corrections                       | 3510 | 358      | 0.016 | 0.010     | 0.000 | 0.119 |
| d) Inspection & Regulation           | 3510 | 324      | 0.004 | 0.004     | 0.000 | 0.056 |
| 5. Environment & Housing             | 3510 | 0        | 0.131 | 0.046     | 0.032 | 0.460 |
| a) Housing & Community Development   | 3510 | 31       | 0.041 | 0.030     | 0.000 | 0.204 |
| b) Parks & Recreation                | 3510 | 0        | 0.031 | 0.020     | 0.000 | 0.372 |
| c) Sewers                            | 3510 | 20       | 0.037 | 0.022     | 0.000 | 0.184 |
| d) Solid Waste Management            | 3510 | 32       | 0.017 | 0.011     | 0.000 | 0.103 |
| e) Natural Resources                 | 3510 | 663      | 0.004 | 0.010     | 0.000 | 0.258 |
| 6. Governmental Administration       | 3510 | 0        | 0.049 | 0.017     | 0.012 | 0.151 |
| a) Financial Administration          | 3510 | 1        | 0.013 | 0.007     | 0.000 | 0.075 |
| b) Judicial & Legal                  | 3510 | 6        | 0.015 | 0.009     | 0.000 | 0.068 |
| c) General Public Buildings          | 3510 | 125      | 0.008 | 0.009     | 0.000 | 0.103 |
| d) Other Governmental Administration | 3510 | 0        | 0.013 | 0.010     | 0.000 | 0.133 |
| 7. Interest on General Debt          | 3510 | 0        | 0.046 | 0.026     | 0.004 | 0.248 |
| 8. Miscellaneous                     | 3510 | 0        | 0.060 | 0.042     | 0.000 | 0.386 |
| a) Misc. Commercial Activities       | 3510 | 2658     | 0.000 | 0.002     | 0.000 | 0.067 |
| b) Other General Expenditures        | 3510 | 0        | 0.059 | 0.042     | 0.000 | 0.386 |
| Utility Expenditures                 | 3510 | 2        | 0.115 | 0.105     | 0.000 | 0.591 |
| 1. Water Supply                      | 3510 | 162      | 0.043 | 0.030     | 0.000 | 0.262 |
| 2. Transit                           | 3510 | 236      | 0.021 | 0.021     | 0.000 | 0.145 |
| 3. Electric                          | 3510 | 2383     | 0.045 | 0.098     | 0.000 | 0.575 |
| 4. Gas                               | 3510 | 3109     | 0.006 | 0.022     | 0.000 | 0.189 |
| Liquor Store Expenditures            | 3510 | 3405     | 0.000 | 0.003     | 0.000 | 0.031 |

**Table B2: Summary statistics for total expenditure components**

| Variable                          | N    | # zeroes | Mean  | Std. Dev. | Min   | Max   |
|-----------------------------------|------|----------|-------|-----------|-------|-------|
| Total Expenditures                | 3510 | 0        | 1.000 | 0.000     | 1.000 | 1.000 |
| A. Intergovernmental Expenditures | 3510 | 767      | 0.007 | 0.013     | 0.000 | 0.187 |
| B. Direct Expenditures            | 3510 | 0        | 0.993 | 0.013     | 0.813 | 1.000 |
| 1. Current Operations             | 3510 | 0        | 0.782 | 0.069     | 0.404 | 0.979 |
| 2. Capital Outlay                 | 3510 | 0        | 0.148 | 0.059     | 0.004 | 0.469 |
| a) Construction                   | 3510 | 0        | 0.116 | 0.056     | 0.001 | 0.448 |
| b) Equipment & Land Purchases     | 3510 | 0        | 0.032 | 0.025     | 0.000 | 0.363 |
| 3. Assistance & Subsidies         | 3510 | 2232     | 0.007 | 0.016     | 0.000 | 0.145 |
| 4. Interest on Debt               | 3510 | 0        | 0.056 | 0.030     | 0.006 | 0.263 |
| Exhibit: Salaries & Wages         | 3510 | 0        | 0.380 | 0.078     | 0.011 | 0.661 |

**Table B3: Summary statistics for all capital outlay components**

| Variable                           | N    | # zeroes | Mean  | Std. Dev. | Min   | Max   |
|------------------------------------|------|----------|-------|-----------|-------|-------|
| A. General Capital Outlay          | 3510 | 0        | 0.123 | 0.053     | 0.004 | 0.456 |
| 1) K-12 Education                  | 3510 | 13       | 0.030 | 0.022     | 0.000 | 0.208 |
| 2) Airports & Seaports             | 3510 | 668      | 0.012 | 0.022     | 0.000 | 0.376 |
| 3) Highways                        | 3510 | 114      | 0.017 | 0.017     | 0.000 | 0.162 |
| 4) Housing & Community Development | 3510 | 245      | 0.008 | 0.010     | 0.000 | 0.147 |
| 5) Parks & Recreation              | 3510 | 129      | 0.008 | 0.014     | 0.000 | 0.337 |
| 6) Sewers                          | 3510 | 223      | 0.014 | 0.016     | 0.000 | 0.162 |
| 7) Other General Capital Outlay    | 3510 | 7        | 0.034 | 0.026     | 0.000 | 0.347 |
| B. Utility Capital Outlay          | 3510 | 202      | 0.025 | 0.025     | 0.000 | 0.289 |
| 1. Water Supply                    | 3510 | 519      | 0.014 | 0.017     | 0.000 | 0.194 |
| 2. Transit                         | 3510 | 784      | 0.005 | 0.009     | 0.000 | 0.109 |
| 3. Electric                        | 3510 | 2728     | 0.006 | 0.016     | 0.000 | 0.289 |
| 4. Gas                             | 3510 | 3197     | 0.001 | 0.003     | 0.000 | 0.057 |

**Table B4: Summary statistics for all current operations components**

| Variable                           | N    | # zeroes | Mean  | Std. Dev. | Min    | Max   |
|------------------------------------|------|----------|-------|-----------|--------|-------|
| A. General Current Operations      | 3510 | 0        | 0.755 | 0.107     | 0.348  | 0.975 |
| 1) K-12 Education                  | 3510 | 4        | 0.286 | 0.086     | 0.000  | 0.608 |
| 2) Airports & Seaports             | 3510 | 362      | 0.009 | 0.014     | -0.199 | 0.098 |
| 3) Highways                        | 3510 | 0        | 0.024 | 0.014     | 0.002  | 0.125 |
| 4) Housing & Community Development | 3510 | 31       | 0.034 | 0.025     | 0.000  | 0.190 |
| 5) Parks & Recreation              | 3510 | 1        | 0.023 | 0.012     | 0.000  | 0.112 |
| 6) Sewers                          | 3510 | 22       | 0.023 | 0.013     | 0.000  | 0.124 |
| 7) Other General Capital Outlay    | 3510 | 0        | 0.026 | 0.040     | -0.225 | 0.272 |
| B. Utility Current Operations      | 3510 | 2        | 0.090 | 0.092     | 0.000  | 0.542 |
| 1. Water Supply                    | 3510 | 162      | 0.030 | 0.019     | 0.000  | 0.129 |
| 2. Transit                         | 3510 | 239      | 0.016 | 0.014     | 0.000  | 0.106 |
| 3. Electric                        | 3510 | 2396     | 0.039 | 0.088     | 0.000  | 0.521 |
| 4. Gas                             | 3510 | 3110     | 0.005 | 0.019     | 0.000  | 0.172 |

## Supplementary Material C: Population change estimations

**Table C1:** Driscoll-Kraay estimator overlapping estimation results with different lag structures

| # of lags                 | 1                              | 2                              | 3                             | 4                             | 5                             |
|---------------------------|--------------------------------|--------------------------------|-------------------------------|-------------------------------|-------------------------------|
| Total Expenditures (% PI) | <b>-0.0563***</b><br>(0.0193)  | <b>-0.111***</b><br>(0.0399)   | <b>-0.158***</b><br>(0.0556)  | <b>-0.217***</b><br>(0.0716)  | <b>-0.272***</b><br>(0.0900)  |
| Budget Surplus (% PI)     | 0.000435<br>(0.0297)           | 0.0225<br>(0.0647)             | 0.0406<br>(0.0893)            | 0.0463<br>(0.106)             | 0.0339<br>(0.116)             |
| Higher Education          | 0.0300<br>(0.0264)             | <b>0.0847**</b><br>(0.0404)    | <b>0.172***</b><br>(0.0474)   | <b>0.296***</b><br>(0.0689)   | <b>0.365***</b><br>(0.0894)   |
| Cap. K-12 Education       | <b>0.0192*</b><br>(0.00970)    | 0.0298<br>(0.0190)             | 0.0322<br>(0.0251)            | 0.0386<br>(0.0282)            | 0.0330<br>(0.0276)            |
| Cur. K-12 Education       | <b>-0.0136***</b><br>(0.00315) | <b>-0.0294***</b><br>(0.00774) | <b>-0.0407***</b><br>(0.0128) | <b>-0.0555**</b><br>(0.0202)  | <b>-0.0730**</b><br>(0.0273)  |
| Libraries                 | <b>-0.0677*</b><br>(0.0363)    | <b>-0.135**</b><br>(0.0648)    | <b>-0.224**</b><br>(0.0983)   | <b>-0.310**</b><br>(0.142)    | <b>-0.379*</b><br>(0.188)     |
| Public Welfare            | -0.0271<br>(0.0193)            | <b>-0.0602**</b><br>(0.0242)   | <b>-0.0773***</b><br>(0.0251) | <b>-0.0896***</b><br>(0.0252) | <b>-0.0937***</b><br>(0.0250) |
| Hospitals                 | <b>-0.00711**</b><br>(0.00343) | <b>-0.0184***</b><br>(0.00631) | <b>-0.0276**</b><br>(0.0107)  | <b>-0.0365**</b><br>(0.0160)  | <b>-0.0389*</b><br>(0.0217)   |
| Health                    | <b>-0.0295*</b><br>(0.0165)    | -0.0294<br>(0.0342)            | 0.000943<br>(0.0497)          | 0.0480<br>(0.0664)            | 0.0853<br>(0.0738)            |
| Cap. Highways             | <b>0.0273**</b><br>(0.0115)    | <b>0.0661***</b><br>(0.0212)   | <b>0.109***</b><br>(0.0277)   | <b>0.158***</b><br>(0.0344)   | <b>0.206***</b><br>(0.0383)   |
| Cur. Highways             | -0.0249<br>(0.0235)            | -0.0458<br>(0.0345)            | -0.0606<br>(0.0382)           | -0.0520<br>(0.0505)           | -0.0256<br>(0.0687)           |
| Cap. Transit              | 0.00236<br>(0.0214)            | -0.0109<br>(0.0333)            | -0.0107<br>(0.0515)           | -0.0118<br>(0.0827)           | -0.0182<br>(0.118)            |
| Cur. Transit              | <b>-0.0691***</b><br>(0.0228)  | <b>-0.126***</b><br>(0.0402)   | <b>-0.178***</b><br>(0.0614)  | <b>-0.255***</b><br>(0.0624)  | <b>-0.341***</b><br>(0.0650)  |
| Cap. Airports             | <b>0.0257**</b><br>(0.0114)    | <b>0.0300*</b><br>(0.0175)     | <b>0.0364*</b><br>(0.0211)    | 0.0305<br>(0.0233)            | 0.0168<br>(0.0231)            |
| Cur. Airports             | <b>0.0698**</b><br>(0.0335)    | <b>0.114*</b><br>(0.0603)      | 0.151<br>(0.0940)             | 0.167<br>(0.125)              | 0.139<br>(0.153)              |
| Parking Facilities        | <b>0.116***</b><br>(0.0354)    | <b>0.262***</b><br>(0.0590)    | <b>0.426***</b><br>(0.0636)   | <b>0.554***</b><br>(0.0671)   | <b>0.675***</b><br>(0.0910)   |
| Police Protection         | -0.00194<br>(0.0179)           | 0.000809<br>(0.0325)           | 0.0135<br>(0.0507)            | 0.0138<br>(0.0706)            | 0.00300<br>(0.0881)           |
| Fire Protection           | <b>-0.0468*</b><br>(0.0269)    | <b>-0.112**</b><br>(0.0458)    | <b>-0.160**</b><br>(0.0626)   | <b>-0.195**</b><br>(0.0748)   | <b>-0.219***</b><br>(0.0747)  |
| Cap. Parks & Rec.         | -0.00607<br>(0.00862)          | -0.0159<br>(0.0198)            | -0.0300<br>(0.0281)           | -0.0574<br>(0.0351)           | <b>-0.0735*</b><br>(0.0370)   |
| Cur. Parks & Rec.         | 0.0307<br>(0.0243)             | 0.0501<br>(0.0376)             | 0.0487<br>(0.0480)            | 0.0320<br>(0.0595)            | 0.0283<br>(0.0671)            |
| Housing & Comm. Dev.      | 0.0135<br>(0.0106)             | 0.0337<br>(0.0231)             | <b>0.0626*</b><br>(0.0358)    | <b>0.0838*</b><br>(0.0488)    | 0.0904<br>(0.0558)            |
| Observations              | 4,050                          | 3,915                          | 3,780                         | 3,645                         | 3,510                         |
| Number of cities          | 135                            | 135                            | 135                           | 135                           | 135                           |

*The estimation results continue on the next page with the results for the control variables. Please find the notes for this table at the end of estimation results (next page).*

Table C1 continued.

| # of lags                     | 1                              | 2                              | 3                              | 4                            | 5                            |
|-------------------------------|--------------------------------|--------------------------------|--------------------------------|------------------------------|------------------------------|
| Initial ln(Population)        | <b>-0.0300***</b><br>(0.00320) | <b>-0.0614***</b><br>(0.00569) | <b>-0.0948***</b><br>(0.00796) | <b>-0.132***</b><br>(0.0103) | <b>-0.173***</b><br>(0.0123) |
| Total Outstanding Debt (% PI) | -0.00920<br>(0.00646)          | -0.0116<br>(0.0107)            | -0.0102<br>(0.0122)            | -0.00786<br>(0.0131)         | -0.0141<br>(0.0139)          |
| Total Cash Holdings (% PI)    | <b>0.00936*</b><br>(0.00477)   | 0.00634<br>(0.00793)           | -0.00266<br>(0.0107)           | -0.0112<br>(0.0130)          | -0.0125<br>(0.0143)          |
| % Aged > 65                   | <b>-0.138***</b><br>(0.0401)   | <b>-0.264***</b><br>(0.0853)   | <b>-0.350**</b><br>(0.129)     | <b>-0.393**</b><br>(0.170)   | <b>-0.379*</b><br>(0.209)    |
| % Aged > 18 & < 40            | 0.0200<br>(0.0328)             | -0.0201<br>(0.0661)            | -0.0493<br>(0.0971)            | -0.0793<br>(0.123)           | -0.0802<br>(0.139)           |
| % Non-White                   | -0.00519<br>(0.00868)          | -0.0160<br>(0.0174)            | -0.0352<br>(0.0247)            | <b>-0.0592*</b><br>(0.0309)  | <b>-0.0884**</b><br>(0.0360) |
| % Student                     | 0.0136<br>(0.0145)             | 0.0299<br>(0.0287)             | 0.0450<br>(0.0424)             | 0.0583<br>(0.0613)           | 0.0816<br>(0.0803)           |
| ln(Personal Income p.c.)      | 0.0102<br>(0.00628)            | <b>0.0208*</b><br>(0.0109)     | 0.0234<br>(0.0141)             | 0.0164<br>(0.0160)           | 0.00896<br>(0.0168)          |
| HPI                           | -0.00228<br>(0.00330)          | -0.00799<br>(0.00714)          | -0.0147<br>(0.0109)            | -0.0206<br>(0.0135)          | <b>-0.0257*</b><br>(0.0146)  |
| Unemployment %                | <b>-0.176***</b><br>(0.0328)   | <b>-0.346***</b><br>(0.0735)   | <b>-0.472***</b><br>(0.117)    | <b>-0.545***</b><br>(0.137)  | <b>-0.530***</b><br>(0.142)  |
| Observations                  | 4,050                          | 3,915                          | 3,780                          | 3,645                        | 3,510                        |
| Number of cities              | 135                            | 135                            | 135                            | 135                          | 135                          |

Note: all explanatory variables are lagged by the number given at the top of the column in number of years. All estimations include two-way fixed effects. The Driscoll-Kraay estimator includes up to six-year lags. Robust standard errors in parentheses (\*\*\*)  $p < 0.01$ , (\*\*)  $p < 0.05$ , (\*)  $p < 0.1$ .

**Table C2: Robustness estimations**

| Estimation strategy       | State clus                   | 2 DK lags                     | Per capita                    | Lagged population growth      |
|---------------------------|------------------------------|-------------------------------|-------------------------------|-------------------------------|
| Total Expenditures (% PI) | <b>-0.272**</b><br>(0.119)   | <b>-0.272***</b><br>(0.0741)  | <b>-0.0349**</b><br>(0.0137)  | <b>-0.271***</b><br>(0.0881)  |
| Budget Surplus (% PI)     | 0.0339<br>(0.128)            | 0.0339<br>(0.125)             | 0.00599<br>(0.0103)           | 0.0465<br>(0.108)             |
| Higher Education          | <b>0.365**</b><br>(0.147)    | <b>0.365***</b><br>(0.0730)   | <b>0.359***</b><br>(0.0884)   | <b>0.329***</b><br>(0.0984)   |
| Cap. K-12 Education       | 0.0330<br>(0.0476)           | 0.0330<br>(0.0269)            | 0.0376<br>(0.0294)            | 0.00247<br>(0.0224)           |
| Cur. K-12 Education       | <b>-0.0730**</b><br>(0.0305) | <b>-0.0730***</b><br>(0.0223) | <b>-0.0733**</b><br>(0.0339)  | <b>-0.0743***</b><br>(0.0266) |
| Libraries                 | <b>-0.379**</b><br>(0.164)   | <b>-0.379**</b><br>(0.163)    | <b>-0.378*</b><br>(0.187)     | <b>-0.394*</b><br>(0.201)     |
| Public Welfare            | -0.0937<br>(0.0852)          | <b>-0.0937***</b><br>(0.0224) | <b>-0.0944***</b><br>(0.0242) | <b>-0.107***</b><br>(0.0308)  |
| Hospitals                 | -0.0389<br>(0.0360)          | -0.0389<br>(0.0233)           | <b>-0.0394*</b><br>(0.0213)   | -0.0366<br>(0.0234)           |
| Health                    | 0.0853<br>(0.0768)           | 0.0853<br>(0.0645)            | 0.0731<br>(0.0754)            | <b>0.105*</b><br>(0.0596)     |
| Cap. Highways             | <b>0.206***</b><br>(0.0538)  | <b>0.206***</b><br>(0.0376)   | <b>0.204***</b><br>(0.0386)   | <b>0.189***</b><br>(0.0365)   |
| Cur. Highways             | -0.0256<br>(0.118)           | -0.0256<br>(0.0727)           | -0.0417<br>(0.0651)           | 0.00195<br>(0.0885)           |
| Cap. Transit              | -0.0182<br>(0.153)           | -0.0182<br>(0.106)            | -0.0229<br>(0.121)            | -0.0350<br>(0.124)            |
| Cur. Transit              | <b>-0.341*</b><br>(0.174)    | <b>-0.341***</b><br>(0.0780)  | <b>-0.333***</b><br>(0.0708)  | <b>-0.267***</b><br>(0.0635)  |
| Cap. Airports             | 0.0168<br>(0.0630)           | 0.0168<br>(0.0245)            | 0.00302<br>(0.0205)           | 0.0134<br>(0.0233)            |
| Cur. Airports             | 0.139<br>(0.116)             | 0.139<br>(0.130)              | 0.126<br>(0.156)              | 0.0902<br>(0.142)             |
| Parking Facilities        | <b>0.675***</b><br>(0.249)   | <b>0.675***</b><br>(0.134)    | <b>0.661***</b><br>(0.0896)   | <b>0.608***</b><br>(0.0999)   |
| Police Protection         | 0.00300<br>(0.101)           | 0.00300<br>(0.0812)           | -0.00744<br>(0.0932)          | 0.0186<br>(0.0854)            |
| Fire Protection           | -0.219<br>(0.164)            | <b>-0.219***</b><br>(0.0759)  | <b>-0.232***</b><br>(0.0755)  | <b>-0.201***</b><br>(0.0682)  |
| Cap. Parks & Rec.         | -0.0735<br>(0.0546)          | <b>-0.0735**</b><br>(0.0331)  | <b>-0.0655*</b><br>(0.0343)   | <b>-0.0693**</b><br>(0.0328)  |
| Cur. Parks & Rec.         | 0.0283<br>(0.157)            | 0.0283<br>(0.0758)            | 0.0420<br>(0.0718)            | -0.0283<br>(0.0586)           |
| Housing & Comm. Dev.      | 0.0904<br>(0.0549)           | <b>0.0904*</b><br>(0.0495)    | 0.0850<br>(0.0542)            | <b>0.101*</b><br>(0.0534)     |

*The estimation results continue on the next page with the results for the control variables. Please find the notes for this table at the end of estimation results (next page).*

Table C2 continued

| Estimation strategy            | State cluster                  | 2 DK lags                    | Per capita                       | Lagged population growth     |
|--------------------------------|--------------------------------|------------------------------|----------------------------------|------------------------------|
| Initial ln(Population)         | <b>-0.173***</b><br>(0.0279)   | <b>-0.173***</b><br>(0.0118) | <b>-0.171***</b><br>(0.0120)     | <b>-0.164***</b><br>(0.0162) |
| Total Outstanding Debt (% PI)  | -0.0141<br>(0.0376)            | -0.0141<br>(0.0150)          | -0.00374<br>(0.00234)            | -0.00180<br>(0.0152)         |
| Total Cash Holdings (% PI)     | -0.0125<br>(0.0409)            | -0.0125<br>(0.0158)          | <b>-0.00317***</b><br>(0.000727) | <b>-0.0236*</b><br>(0.0117)  |
| % Aged > 65                    | <b>-0.379**</b><br>(0.182)     | <b>-0.379*</b><br>(0.213)    | <b>-0.419**</b><br>(0.195)       | -0.239<br>(0.204)            |
| % Aged > 18 & < 40             | -0.0802<br>(0.179)             | -0.0802<br>(0.149)           | -0.0982<br>(0.131)               | -0.138<br>(0.145)            |
| % Non-White                    | -0.0884<br>(0.0958)            | <b>-0.0884**</b><br>(0.0380) | <b>-0.0844**</b><br>(0.0364)     | <b>-0.0760*</b><br>(0.0405)  |
| % Student                      | 0.0816<br>(0.0677)             | 0.0816<br>(0.0684)           | 0.0778<br>(0.0859)               | 0.0913<br>(0.0751)           |
| ln(Personal Income p.c.)       | 0.00896<br>(0.0243)            | 0.00896<br>(0.0183)          | <b>0.0457**</b><br>(0.0191)      | -0.00534<br>(0.0174)         |
| HPI                            | <b>-0.0257***</b><br>(0.00677) | <b>-0.0257**</b><br>(0.0120) | <b>-0.0259*</b><br>(0.0143)      | <b>-0.0286**</b><br>(0.0131) |
| Unemployment %                 | <b>-0.530***</b><br>(0.116)    | <b>-0.530***</b><br>(0.131)  | <b>-0.538***</b><br>(0.139)      | <b>-0.519***</b><br>(0.145)  |
| Lagged $\Delta$ ln(Population) |                                |                              |                                  | <b>0.142***</b><br>(0.0459)  |
| R-squared                      | 0.393                          |                              |                                  |                              |
| Observations                   | 3,510                          | 3,510                        | 3,510                            | 3,510                        |
| Number of cities               | 135                            | 135                          | 135                              | 135                          |

Note: these are robustness estimations, using various different techniques. The first estimation uses State-clustered standard errors. The second estimation uses the Driscoll-Kraay estimator including up to two lags. The third estimation normalizes total expenditures and the budget surplus per capita instead of per capita income. The fourth estimation includes lagged population change. The results remain similar. All explanatory variables are lagged five years. All estimations include two-way fixed effects. Robust standard errors in parentheses (\*\*\*)  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

**Table C3:** Estimations for all direct expenditure components

| EXP of interest            | Lags                           |                                |                                |                                |                               |
|----------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|-------------------------------|
|                            | 1                              | 2                              | 3                              | 4                              | 5                             |
| Direct expenditures        | 0.00568<br>(0.0189)            | -0.0136<br>(0.0365)            | -0.0281<br>(0.0574)            | -0.0444<br>(0.0755)            | -0.0561<br>(0.0904)           |
| 1. Education               | -0.00209<br>(0.00271)          | -0.00775<br>(0.00482)          | <b>-0.0161**</b><br>(0.00646)  | <b>-0.0252***</b><br>(0.00863) | <b>-0.0406***</b><br>(0.0131) |
| a) K-12 Education          | -0.00177<br>(0.00244)          | <b>-0.00748*</b><br>(0.00412)  | <b>-0.0160***</b><br>(0.00528) | <b>-0.0258***</b><br>(0.00705) | <b>-0.0411***</b><br>(0.0111) |
| b) Higher Education        | <b>0.0394*</b><br>(0.0212)     | <b>0.106***</b><br>(0.0330)    | <b>0.199***</b><br>(0.0441)    | <b>0.330***</b><br>(0.0687)    | <b>0.410***</b><br>(0.0818)   |
| c) Libraries               | <b>-0.0788**</b><br>(0.0300)   | <b>-0.152**</b><br>(0.0610)    | <b>-0.243**</b><br>(0.0919)    | <b>-0.333**</b><br>(0.140)     | <b>-0.399**</b><br>(0.183)    |
| 2. Health & Welfare        | <b>-0.0111***</b><br>(0.00323) | <b>-0.0214***</b><br>(0.00552) | <b>-0.0270***</b><br>(0.00959) | <b>-0.0289*</b><br>(0.0152)    | -0.0238<br>(0.0218)           |
| a) Hospitals               | -0.00520<br>(0.00550)          | -0.0145<br>(0.0103)            | -0.0244<br>(0.0162)            | -0.0325<br>(0.0232)            | -0.0316<br>(0.0307)           |
| b) Health                  | -0.0246<br>(0.0199)            | -0.0148<br>(0.0373)            | 0.0233<br>(0.0517)             | 0.0804<br>(0.0659)             | <b>0.130*</b><br>(0.0719)     |
| c) Public Welfare          | -0.0213<br>(0.0165)            | <b>-0.0489***</b><br>(0.0176)  | <b>-0.0661***</b><br>(0.0151)  | <b>-0.0792***</b><br>(0.0125)  | <b>-0.0822***</b><br>(0.0143) |
| 3. Transportation          | <b>0.0218***</b><br>(0.00534)  | <b>0.0392***</b><br>(0.00885)  | <b>0.0591***</b><br>(0.0118)   | <b>0.0771***</b><br>(0.0186)   | <b>0.0933***</b><br>(0.0236)  |
| a) Highways                | 0.0144<br>(0.00873)            | <b>0.0425***</b><br>(0.0146)   | <b>0.0755***</b><br>(0.0188)   | <b>0.120***</b><br>(0.0288)    | <b>0.168***</b><br>(0.0397)   |
| b) Parking Facilities      | <b>0.0971***</b><br>(0.0270)   | <b>0.234***</b><br>(0.0474)    | <b>0.396***</b><br>(0.0621)    | <b>0.529***</b><br>(0.0717)    | <b>0.652***</b><br>(0.0941)   |
| c) Airports                | <b>0.0260***</b><br>(0.00894)  | <b>0.0323**</b><br>(0.0141)    | <b>0.0385**</b><br>(0.0171)    | <b>0.0299**</b><br>(0.0144)    | 0.0132<br>(0.0124)            |
| d) Seaports                | -0.0113<br>(0.0255)            | -0.0403<br>(0.0439)            | -0.0724<br>(0.0607)            | -0.0881<br>(0.0798)            | -0.0844<br>(0.0947)           |
| 4. Public Safety           | <b>-0.0280**</b><br>(0.0127)   | <b>-0.0542**</b><br>(0.0255)   | <b>-0.0749*</b><br>(0.0417)    | -0.0910<br>(0.0622)            | -0.105<br>(0.0751)            |
| a) Police Protection       | -0.00940<br>(0.0164)           | -0.0126<br>(0.0325)            | -0.00832<br>(0.0515)           | -0.0123<br>(0.0748)            | -0.0184<br>(0.0933)           |
| b) Fire Protection         | <b>-0.0451*</b><br>(0.0250)    | <b>-0.101**</b><br>(0.0416)    | <b>-0.135**</b><br>(0.0551)    | <b>-0.160**</b><br>(0.0715)    | <b>-0.176*</b><br>(0.0857)    |
| c) Corrections             | <b>-0.0515*</b><br>(0.0253)    | <b>-0.106*</b><br>(0.0538)     | <b>-0.166*</b><br>(0.0881)     | -0.200<br>(0.129)              | -0.227<br>(0.148)             |
| d) Inspection & Regulation | <b>-0.149***</b><br>(0.0268)   | <b>-0.250***</b><br>(0.0877)   | <b>-0.343**</b><br>(0.148)     | <b>-0.421*</b><br>(0.213)      | <b>-0.501*</b><br>(0.274)     |

*The estimation results continue on the next page. Please find the notes for this table at the end of estimation results (next page).*

Table C3 continued

| EXP of interest                | Lags                           |                               |                               |                               |                              |
|--------------------------------|--------------------------------|-------------------------------|-------------------------------|-------------------------------|------------------------------|
|                                | 1                              | 2                             | 3                             | 4                             | 5                            |
| 5. Environment & Housing       | -0.00107<br>(0.00604)          | 0.00157<br>(0.0105)           | 0.00593<br>(0.0131)           | 0.00593<br>(0.0179)           | 0.00994<br>(0.0216)          |
| a) Housing & Com. Dev.         | 0.0174<br>(0.0134)             | 0.0431<br>(0.0267)            | <b>0.0761*</b><br>(0.0398)    | <b>0.105*</b><br>(0.0530)     | <b>0.122*</b><br>(0.0614)    |
| b) Parks & Recreation          | 0.00240<br>(0.00824)           | 0.00258<br>(0.0176)           | -0.00719<br>(0.0245)          | -0.0278<br>(0.0309)           | -0.0348<br>(0.0337)          |
| c) Sewers                      | <b>-0.0181***</b><br>(0.00579) | <b>-0.0355***</b><br>(0.0105) | <b>-0.0493***</b><br>(0.0155) | <b>-0.0625**</b><br>(0.0240)  | <b>-0.0713**</b><br>(0.0330) |
| d) Solid Waste Management      | -0.0321<br>(0.0226)            | -0.0586<br>(0.0509)           | -0.0865<br>(0.0675)           | -0.101<br>(0.0770)            | -0.0800<br>(0.0697)          |
| e) Natural Resources           | 0.00551<br>(0.0166)            | 0.0166<br>(0.0318)            | 0.0312<br>(0.0377)            | 0.0395<br>(0.0398)            | 0.0570<br>(0.0387)           |
| 6. Governmental Administration | <b>0.0280*</b><br>(0.0143)     | <b>0.0479*</b><br>(0.0236)    | <b>0.0694**</b><br>(0.0310)   | <b>0.0800**</b><br>(0.0362)   | <b>0.101**</b><br>(0.0415)   |
| a) Financial Administration    | <b>0.0978***</b><br>(0.0336)   | <b>0.192***</b><br>(0.0608)   | <b>0.295***</b><br>(0.0956)   | <b>0.357***</b><br>(0.111)    | <b>0.426***</b><br>(0.128)   |
| b) Judicial & Legal            | -0.0696<br>(0.0552)            | <b>-0.246**</b><br>(0.0958)   | <b>-0.441***</b><br>(0.119)   | <b>-0.647***</b><br>(0.142)   | <b>-0.761***</b><br>(0.161)  |
| c) General Public Buildings    | -0.00239<br>(0.0226)           | -0.0115<br>(0.0364)           | -0.0224<br>(0.0505)           | -0.0326<br>(0.0622)           | -0.0490<br>(0.0724)          |
| d) Other Gov. Adm.             | <b>0.0353**</b><br>(0.0138)    | <b>0.0868***</b><br>(0.0239)  | <b>0.145***</b><br>(0.0377)   | <b>0.195***</b><br>(0.0492)   | <b>0.249***</b><br>(0.0641)  |
| 7. Interest on General Debt    | <b>-0.0180**</b><br>(0.00799)  | <b>-0.0390**</b><br>(0.0162)  | <b>-0.0740***</b><br>(0.0245) | <b>-0.115***</b><br>(0.0302)  | <b>-0.143***</b><br>(0.0334) |
| 8. Miscellaneous               | 0.00643<br>(0.00607)           | 0.0174<br>(0.0122)            | 0.0207<br>(0.0150)            | 0.0208<br>(0.0182)            | 0.0117<br>(0.0173)           |
| a) Misc. Commercial Activities | <b>0.0763**</b><br>(0.0326)    | <b>0.134**</b><br>(0.0530)    | <b>0.139**</b><br>(0.0641)    | <b>0.137**</b><br>(0.0581)    | <b>0.0970*</b><br>(0.0546)   |
| b) Other General Expenditures  | 0.00594<br>(0.00595)           | 0.0165<br>(0.0119)            | 0.0197<br>(0.0148)            | 0.0198<br>(0.0180)            | 0.0111<br>(0.0171)           |
| 9. Utility expenditures        | 0.00410<br>(0.00359)           | 0.00723<br>(0.00525)          | <b>0.0159**</b><br>(0.00700)  | <b>0.0321***</b><br>(0.00939) | <b>0.0515***</b><br>(0.0116) |
| a) Water Supply                | 0.00542<br>(0.00459)           | 0.00728<br>(0.0102)           | 0.00949<br>(0.0174)           | 0.00832<br>(0.0255)           | 0.0132<br>(0.0326)           |
| b) Transit                     | <b>-0.0228**</b><br>(0.00964)  | <b>-0.0478**</b><br>(0.0175)  | <b>-0.0650**</b><br>(0.0316)  | <b>-0.0936*</b><br>(0.0495)   | -0.129<br>(0.0781)           |
| c) Electric                    | <b>0.00760*</b><br>(0.00408)   | <b>0.0157**</b><br>(0.00569)  | <b>0.0352**</b><br>(0.0136)   | <b>0.0741***</b><br>(0.0229)  | <b>0.116***</b><br>(0.0323)  |
| d) Gas                         | 0.00726<br>(0.0113)            | 0.0333<br>(0.0218)            | 0.0390<br>(0.0354)            | 0.0615<br>(0.0517)            | 0.0637<br>(0.0719)           |
| 10. Liquor Store               | -0.344<br>(0.339)              | -1.039<br>(0.616)             | <b>-1.750*</b><br>(0.855)     | <b>-2.348**</b><br>(1.049)    | <b>-2.824**</b><br>(1.264)   |
| Observations                   | 4,050                          | 3,915                         | 3,780                         | 3,645                         | 3,510                        |
| Number of cities               | 135                            | 135                           | 135                           | 135                           | 135                          |

Note: even though the variables are shown below one-another, they are not included in the same estimations; each coefficient for each variable represents a separate estimation. The control variables are not shown here but they include the same control variables as found in our preferred estimation (economy in table 2): Initial  $\ln(\text{Population})$ , Total Outstanding Debt (% PI), Total Cash Holdings (% PI), % Aged > 65, % Aged > 18 & < 40, % Non-White, % Student,  $\ln(\text{Personal Income p.c.})$ , HPI, and Unemployment %. All estimations include two-way fixed effects. The Driscoll-Kraay estimator include up to six-lags. Robust standard errors in parentheses (\*\*\*)  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

**Table C4:** Estimations for all total expenditure components

| EXP of interest           | Lags                            |                               |                              |                              |                              |
|---------------------------|---------------------------------|-------------------------------|------------------------------|------------------------------|------------------------------|
|                           | 1                               | 2                             | 3                            | 4                            | 5                            |
| A. Intergovernmental      | -0.00568<br>(0.0189)            | 0.0136<br>(0.0365)            | 0.0281<br>(0.0574)           | 0.0445<br>(0.0755)           | 0.0561<br>(0.0904)           |
| B. Direct Expenditures    | 0.00568<br>(0.0189)             | -0.0136<br>(0.0365)           | -0.0281<br>(0.0574)          | -0.0444<br>(0.0755)          | -0.0561<br>(0.0904)          |
| 1. Current Operations     | <b>-0.00738***</b><br>(0.00193) | <b>-0.00893*</b><br>(0.00442) | -0.00603<br>(0.00678)        | -0.00446<br>(0.00913)        | -0.00201<br>(0.0107)         |
| 2. Capital Outlay         | <b>0.00741***</b><br>(0.00218)  | <b>0.0109**</b><br>(0.00466)  | 0.0116<br>(0.00789)          | 0.0150<br>(0.00984)          | 0.0154<br>(0.0106)           |
| a) Construction           | <b>0.00611*</b><br>(0.00340)    | 0.00872<br>(0.00614)          | 0.00782<br>(0.00971)         | 0.00873<br>(0.0114)          | 0.00874<br>(0.0121)          |
| b) Equipment & Land       | 0.00247<br>(0.00601)            | 0.00429<br>(0.0122)           | 0.00901<br>(0.0163)          | 0.0159<br>(0.0168)           | 0.0168<br>(0.0185)           |
| 3. Assistance & Subsidies | 0.0530<br>(0.0383)              | 0.0509<br>(0.0489)            | 0.0407<br>(0.0626)           | 0.0247<br>(0.0773)           | 0.0201<br>(0.0940)           |
| 4. Interest on Debt       | <b>-0.0170*</b><br>(0.00901)    | <b>-0.0387*</b><br>(0.0200)   | <b>-0.0690**</b><br>(0.0311) | <b>-0.108***</b><br>(0.0381) | <b>-0.134***</b><br>(0.0432) |
| Exhibit: Salaries & Wages | -0.00260<br>(0.00220)           | -0.00439<br>(0.00507)         | -0.00513<br>(0.00909)        | -0.00472<br>(0.0122)         | -0.000734<br>(0.0139)        |
| Observations              | 4,050                           | 3,915                         | 3,780                        | 3,645                        | 3,510                        |
| Number of cities          | 135                             | 135                           | 135                          | 135                          | 135                          |

*Note: even though the variables are shown below one-another, they are not included in the same estimations; each coefficient for each variable represents a separate estimation. The control variables are not shown here but they include the same control variables as found in our preferred estimation (economy in table 2): Initial  $\ln(\text{Population})$ , Total Outstanding Debt (% PI), Total Cash Holdings (% PI), % Aged > 65, % Aged > 18 & < 40, % Non-White, % Student,  $\ln(\text{Personal Income p.c.})$ , HPI, and Unemployment %. All estimations include two-way fixed effects. The Driscoll-Kraay estimator include up to six-lags. Robust standard errors in parentheses (\*\*\*)  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ ).*

**Table C5:** Estimations for all available capital outlay components

| CAP of interest           | Lags                           |                                |                               |                              |                               |
|---------------------------|--------------------------------|--------------------------------|-------------------------------|------------------------------|-------------------------------|
|                           | 1                              | 2                              | 3                             | 4                            | 5                             |
| A. General Capital Outlay | <b>0.0111***</b><br>(0.00275)  | <b>0.0170***</b><br>(0.00500)  | <b>0.0173*</b><br>(0.00885)   | 0.0167<br>(0.0122)           | 0.0115<br>(0.0139)            |
| 1) K-12 Education         | <b>0.0214***</b><br>(0.00757)  | <b>0.0351**</b><br>(0.0169)    | 0.0382<br>(0.0242)            | 0.0468<br>(0.0276)           | 0.0422<br>(0.0287)            |
| 2) Airports & Seaports    | 0.0159<br>(0.0108)             | 0.0152<br>(0.0166)             | 0.0157<br>(0.0216)            | 0.00545<br>(0.0323)          | -0.00504<br>(0.0398)          |
| 3) Highways               | <b>0.0280**</b><br>(0.0104)    | <b>0.0702***</b><br>(0.0194)   | <b>0.115***</b><br>(0.0257)   | <b>0.167***</b><br>(0.0341)  | <b>0.219***</b><br>(0.0408)   |
| 4) Housing & Com. Dev.    | -0.0269<br>(0.0195)            | -0.0377<br>(0.0309)            | -0.0499<br>(0.0360)           | -0.0560<br>(0.0415)          | -0.0717<br>(0.0455)           |
| 5) Parks & Recreation     | -0.000748<br>(0.0102)          | -0.00216<br>(0.0202)           | -0.0113<br>(0.0271)           | -0.0317<br>(0.0332)          | -0.0405<br>(0.0344)           |
| 6) Sewers                 | -0.0169<br>(0.0105)            | <b>-0.0361*</b><br>(0.0185)    | <b>-0.0531**</b><br>(0.0242)  | <b>-0.0689**</b><br>(0.0265) | <b>-0.0825***</b><br>(0.0295) |
| 7) Other General          | 0.00310<br>(0.00455)           | 0.00188<br>(0.00764)           | -0.00419<br>(0.00785)         | -0.0112<br>(0.00730)         | <b>-0.0210**</b><br>(0.00787) |
| B. Utility Capital Outlay | <b>-0.0110**</b><br>(0.00493)  | <b>-0.0184***</b><br>(0.00619) | <b>-0.0167**</b><br>(0.00695) | -0.00214<br>(0.00829)        | 0.0183<br>(0.0117)            |
| 1. Water Supply           | 0.00459<br>(0.00624)           | 0.0115<br>(0.0123)             | 0.0199<br>(0.0210)            | 0.0295<br>(0.0309)           | 0.0426<br>(0.0363)            |
| 2. Transit                | -0.00977<br>(0.0156)           | -0.0286<br>(0.0285)            | -0.0350<br>(0.0483)           | -0.0417<br>(0.0792)          | -0.0539<br>(0.118)            |
| 3. Electric               | <b>-0.0385***</b><br>(0.00527) | <b>-0.0662***</b><br>(0.0165)  | <b>-0.0712**</b><br>(0.0305)  | -0.0375<br>(0.0328)          | 0.00763<br>(0.0384)           |
| 4. Gas                    | -0.0110<br>(0.0443)            | 0.00510<br>(0.0804)            | -0.0316<br>(0.124)            | -0.0377<br>(0.154)           | -0.116<br>(0.251)             |
| Observations              | 4,050                          | 3,915                          | 3,780                         | 3,645                        | 3,510                         |
| Number of cities          | 135                            | 135                            | 135                           | 135                          | 135                           |

*Note: even though the variables are shown below one-another, they are not included in the same estimations; each coefficient for each variable represents a separate estimation. The control variables are not shown here but they include the same control variables as found in our preferred estimation (economy in table 2): Initial ln(Population), Total Outstanding Debt (% PI), Total Cash Holdings (% PI), % Aged > 65, % Aged > 18 & < 40, % Non-White, % Student, ln(Personal Income p.c.), HPI, and Unemployment %. All estimations include two-way fixed effects. The Driscoll-Kraay estimator include up to six-lags. Robust standard errors in parentheses (\*\*\*)  $p < 0.01$ , (\*\*)  $p < 0.05$ , (\*)  $p < 0.1$ ).*

**Table C6:** Estimations for all available current operations expenditure components

| CUR of interest               | Lags                           |                                |                                |                                |                               |
|-------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|-------------------------------|
|                               | 1                              | 2                              | 3                              | 4                              | 5                             |
| A. General Current Operations | <b>-0.0114***</b><br>(0.00185) | <b>-0.0188***</b><br>(0.00369) | <b>-0.0237***</b><br>(0.00748) | <b>-0.0312***</b><br>(0.00999) | <b>-0.0364***</b><br>(0.0121) |
| 1) K-12 Education             | <b>-0.0114***</b><br>(0.00235) | <b>-0.0255***</b><br>(0.00726) | <b>-0.0391***</b><br>(0.0119)  | <b>-0.0573***</b><br>(0.0186)  | <b>-0.0778***</b><br>(0.0249) |
| 2) Airports & Seaports        | 0.0468<br>(0.0340)             | 0.0825<br>(0.0647)             | 0.109<br>(0.101)               | 0.120<br>(0.140)               | 0.0956<br>(0.173)             |
| 3) Highways                   | <b>-0.0283**</b><br>(0.0127)   | <b>-0.0486**</b><br>(0.0234)   | -0.0596<br>(0.0385)            | -0.0494<br>(0.0597)            | -0.0209<br>(0.0810)           |
| 4) Housing & Com. Dev.        | <b>0.0340**</b><br>(0.0146)    | <b>0.0733**</b><br>(0.0292)    | <b>0.125***</b><br>(0.0421)    | <b>0.170***</b><br>(0.0554)    | <b>0.204***</b><br>(0.0634)   |
| 5) Parks & Recreation         | 0.0144<br>(0.0262)             | 0.0210<br>(0.0359)             | 0.0109<br>(0.0422)             | -0.00620<br>(0.0553)           | -0.00324<br>(0.0680)          |
| 6) Sewers                     | -0.0254<br>(0.0204)            | -0.0385<br>(0.0422)            | -0.0409<br>(0.0635)            | -0.0462<br>(0.0821)            | -0.0386<br>(0.0976)           |
| 7) Other General              | 0.00408<br>(0.00432)           | <b>0.0166*</b><br>(0.00815)    | <b>0.0249*</b><br>(0.0123)     | <b>0.0307**</b><br>(0.0146)    | <b>0.0290**</b><br>(0.0131)   |
| B. Utility Current Operations | <b>0.0185***</b><br>(0.00483)  | <b>0.0317***</b><br>(0.00813)  | <b>0.0472***</b><br>(0.0103)   | <b>0.0618***</b><br>(0.0167)   | <b>0.0780***</b><br>(0.0219)  |
| 1. Water Supply               | 0.00907<br>(0.0150)            | -0.000311<br>(0.0289)          | -0.0127<br>(0.0407)            | -0.0367<br>(0.0551)            | -0.0502<br>(0.0698)           |
| 2. Transit                    | <b>-0.0512***</b><br>(0.0160)  | <b>-0.0945***</b><br>(0.0292)  | <b>-0.139***</b><br>(0.0450)   | <b>-0.218***</b><br>(0.0590)   | <b>-0.309***</b><br>(0.0862)  |
| 3. Electric                   | <b>0.0279***</b><br>(0.00346)  | <b>0.0527***</b><br>(0.00954)  | <b>0.0836***</b><br>(0.0188)   | <b>0.120***</b><br>(0.0303)    | <b>0.155***</b><br>(0.0391)   |
| 4. Gas                        | 0.0113<br>(0.0145)             | 0.0376<br>(0.0325)             | 0.0514<br>(0.0505)             | 0.0789<br>(0.0705)             | 0.0971<br>(0.0802)            |
| Observations                  | 4,050                          | 3,915                          | 3,780                          | 3,645                          | 3,510                         |
| Number of cities              | 135                            | 135                            | 135                            | 135                            | 135                           |

*Note: even though the variables are shown below one-another, they are not included in the same estimations; each coefficient for each variable represents a separate estimation. The control variables are not shown here but they include the same control variables as found in our preferred estimation (economy in table 2): Initial ln(Population), Total Outstanding Debt (% PI), Total Cash Holdings (% PI), % Aged > 65, % Aged > 18 & < 40, % Non-White, % Student, ln(Personal Income p.c.), HPI, and Unemployment %. All estimations include two-way fixed effects. The Driscoll-Kraay estimator include up to six-lags. Robust standard errors in parentheses (\*\*\*)  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ ).*

## Supplementary Material D: HPI estimations

**Table D1:** Driscoll-Kraay estimator overlapping estimation results with different lag structures

| # of lags                 | 1                             | 2                            | 3                           | 4                           | 5                           |
|---------------------------|-------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|
| Total Expenditures (% PI) | <b>-0.465***</b><br>(0.161)   | <b>-0.754***</b><br>(0.254)  | <b>-0.978**</b><br>(0.362)  | <b>-1.236***</b><br>(0.402) | <b>-1.587***</b><br>(0.334) |
| Budget Surplus (% PI)     | 0.104<br>(0.168)              | 0.338<br>(0.326)             | 0.570<br>(0.529)            | 0.649<br>(0.706)            | 0.302<br>(0.614)            |
| Higher Education          | <b>-0.174*</b><br>(0.0911)    | -0.233<br>(0.208)            | -0.161<br>(0.335)           | 0.0823<br>(0.476)           | 0.458<br>(0.623)            |
| Cap. K-12 Education       | -0.0518<br>(0.0414)           | -0.134<br>(0.0859)           | <b>-0.234*</b><br>(0.131)   | <b>-0.312*</b><br>(0.178)   | <b>-0.407**</b><br>(0.194)  |
| Cur. K-12 Education       | <b>-0.0845***</b><br>(0.0235) | <b>-0.137***</b><br>(0.0472) | <b>-0.163*</b><br>(0.0816)  | <b>-0.208*</b><br>(0.115)   | <b>-0.279**</b><br>(0.133)  |
| Libraries                 | -0.376<br>(0.283)             | -0.746<br>(0.641)            | -1.169<br>(1.034)           | -1.511<br>(1.397)           | -1.993<br>(1.716)           |
| Public Welfare            | <b>-0.250*</b><br>(0.138)     | <b>-0.507*</b><br>(0.268)    | <b>-0.775*</b><br>(0.393)   | <b>-1.083**</b><br>(0.498)  | <b>-1.334**</b><br>(0.572)  |
| Hospitals                 | -0.0375<br>(0.0293)           | -0.0838<br>(0.0692)          | -0.131<br>(0.108)           | -0.173<br>(0.149)           | -0.189<br>(0.193)           |
| Health                    | 0.0927<br>(0.197)             | 0.306<br>(0.351)             | 0.584<br>(0.414)            | <b>0.845**</b><br>(0.406)   | <b>0.928**</b><br>(0.442)   |
| Cap. Highways             | 0.0403<br>(0.0343)            | 0.101<br>(0.0729)            | <b>0.215*</b><br>(0.115)    | <b>0.331**</b><br>(0.132)   | <b>0.407***</b><br>(0.140)  |
| Cur. Highways             | 0.0586<br>(0.0713)            | <b>0.267**</b><br>(0.128)    | <b>0.387*</b><br>(0.189)    | 0.413<br>(0.311)            | 0.316<br>(0.466)            |
| Cap. Transit              | <b>-0.307*</b><br>(0.151)     | <b>-0.567*</b><br>(0.301)    | <b>-0.701*</b><br>(0.400)   | -0.597<br>(0.450)           | -0.591<br>(0.527)           |
| Cur. Transit              | <b>0.616**</b><br>(0.246)     | <b>1.333**</b><br>(0.614)    | <b>1.838**</b><br>(0.836)   | <b>1.899**</b><br>(0.704)   | <b>1.531**</b><br>(0.561)   |
| Cap. Airports             | <b>0.190***</b><br>(0.0499)   | <b>0.374***</b><br>(0.0755)  | <b>0.513***</b><br>(0.0973) | <b>0.601***</b><br>(0.128)  | <b>0.612***</b><br>(0.168)  |
| Cur. Airports             | <b>0.144*</b><br>(0.0783)     | 0.249<br>(0.159)             | <b>0.368*</b><br>(0.201)    | <b>0.541***</b><br>(0.171)  | <b>0.812***</b><br>(0.192)  |
| Parking Facilities        | <b>0.333*</b><br>(0.177)      | <b>0.708*</b><br>(0.378)     | <b>1.132**</b><br>(0.530)   | <b>1.602***</b><br>(0.525)  | <b>2.072***</b><br>(0.557)  |
| Police Protection         | <b>-0.249***</b><br>(0.0716)  | <b>-0.574***</b><br>(0.131)  | <b>-0.837***</b><br>(0.170) | <b>-1.007***</b><br>(0.233) | <b>-0.932**</b><br>(0.344)  |
| Fire Protection           | -0.167<br>(0.205)             | -0.251<br>(0.416)            | -0.292<br>(0.581)           | -0.303<br>(0.702)           | -0.385<br>(0.769)           |
| Cap. Parks & Rec.         | 0.0455<br>(0.0602)            | 0.0418<br>(0.116)            | -0.0704<br>(0.151)          | -0.286<br>(0.219)           | <b>-0.559*</b><br>(0.296)   |
| Cur. Parks & Rec.         | <b>-0.296***</b><br>(0.0993)  | <b>-0.712***</b><br>(0.257)  | <b>-1.244**</b><br>(0.482)  | <b>-1.669**</b><br>(0.677)  | <b>-1.813**</b><br>(0.773)  |
| Housing & Comm. Dev.      | -0.0643<br>(0.0420)           | -0.0973<br>(0.0918)          | -0.0873<br>(0.126)          | -0.0131<br>(0.146)          | 0.0381<br>(0.160)           |

*The estimation results continue on the next page with the results for the control variables. Please find the notes for this table at the end of estimation results (next page).*

Table D1 continued.

| # of lags                     | 1                            | 2                            | 3                           | 4                           | 5                           |
|-------------------------------|------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|
| Initial HPI                   | <b>-0.0784**</b><br>(0.0318) | <b>-0.220***</b><br>(0.0744) | <b>-0.389***</b><br>(0.121) | <b>-0.558***</b><br>(0.156) | <b>-0.710***</b><br>(0.177) |
| Total Outstanding Debt (% PI) | 0.0482<br>(0.0436)           | 0.102<br>(0.0887)            | 0.163<br>(0.113)            | <b>0.218*</b><br>(0.118)    | <b>0.251*</b><br>(0.133)    |
| Total Cash Holdings (% PI)    | -0.0346<br>(0.0425)          | -0.0878<br>(0.104)           | -0.159<br>(0.163)           | -0.247<br>(0.213)           | -0.335<br>(0.265)           |
| % Aged > 65                   | <b>-0.457***</b><br>(0.132)  | <b>-1.054***</b><br>(0.289)  | <b>-1.573***</b><br>(0.498) | <b>-1.887**</b><br>(0.684)  | <b>-1.783**</b><br>(0.776)  |
| % Aged > 18 & < 40            | <b>-0.522***</b><br>(0.107)  | <b>-1.045***</b><br>(0.208)  | <b>-1.494***</b><br>(0.367) | <b>-1.802***</b><br>(0.516) | <b>-1.922***</b><br>(0.608) |
| % Non-White                   | 0.138<br>(0.0897)            | 0.220<br>(0.194)             | 0.243<br>(0.290)            | 0.186<br>(0.366)            | 0.0757<br>(0.422)           |
| % Student                     | <b>0.233***</b><br>(0.0693)  | <b>0.345***</b><br>(0.113)   | <b>0.395**</b><br>(0.151)   | <b>0.475**</b><br>(0.209)   | <b>0.589**</b><br>(0.262)   |
| ln(Personal Income p.c.)      | 0.0336<br>(0.0487)           | 0.0867<br>(0.0952)           | 0.107<br>(0.130)            | 0.0499<br>(0.134)           | -0.0700<br>(0.105)          |
| ln(Population)                | <b>0.0358**</b><br>(0.0173)  | <b>0.100**</b><br>(0.0406)   | <b>0.167**</b><br>(0.0648)  | <b>0.222**</b><br>(0.0808)  | <b>0.258***</b><br>(0.0833) |
| Unemployment %                | <b>-1.469***</b><br>(0.355)  | <b>-2.708***</b><br>(0.798)  | <b>-3.546***</b><br>(1.206) | <b>-4.043**</b><br>(1.515)  | <b>-4.171**</b><br>(1.706)  |
| Observations                  | 4,050                        | 3,915                        | 3,780                       | 3,645                       | 3,510                       |
| Number of cities              | 135                          | 135                          | 135                         | 135                         | 135                         |

Note: all explanatory variables are lagged by the number given at the top of the column in number of years. The control variables are not shown here but they include the same control variables as found in our preferred estimation (economy in table 3). All estimations include two-way fixed effects. The Driscoll-Kraay estimator includes up to six-year lags. Robust standard errors in parentheses (\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ ).

**Table D2:** Robustness estimations

| Estimation strategy       | State cluster               | 2 DK lags                   | Per capita                   | Lagged $\Delta$<br>HPI      |
|---------------------------|-----------------------------|-----------------------------|------------------------------|-----------------------------|
| Total Expenditures (% PI) | <b>-1.587***</b><br>(0.514) | <b>-1.587***</b><br>(0.327) | <b>-0.235***</b><br>(0.0544) | <b>-1.651***</b><br>(0.372) |
| Budget Surplus (% PI)     | 0.302<br>(0.686)            | 0.302<br>(0.591)            | 0.0258<br>(0.0558)           | 0.448<br>(0.649)            |
| Higher Education          | 0.458<br>(1.367)            | 0.458<br>(0.590)            | 0.353<br>(0.654)             | 0.467<br>(0.613)            |
| Cap. K-12 Education       | <b>-0.407*</b><br>(0.202)   | <b>-0.407**</b><br>(0.182)  | <b>-0.406**</b><br>(0.192)   | <b>-0.310**</b><br>(0.145)  |
| Cur. K-12 Education       | -0.279<br>(0.200)           | <b>-0.279*</b><br>(0.138)   | <b>-0.341*</b><br>(0.171)    | <b>-0.261**</b><br>(0.124)  |
| Libraries                 | -1.993<br>(1.454)           | -1.993<br>(1.428)           | -2.003<br>(1.688)            | -1.827<br>(1.502)           |
| Public Welfare            | -1.334<br>(1.052)           | <b>-1.334**</b><br>(0.557)  | <b>-1.345**</b><br>(0.576)   | <b>-1.387**</b><br>(0.579)  |
| Hospitals                 | -0.189<br>(0.213)           | -0.189<br>(0.166)           | -0.196<br>(0.187)            | -0.164<br>(0.171)           |
| Health                    | 0.928<br>(0.662)            | <b>0.928**</b><br>(0.401)   | <b>0.781*</b><br>(0.432)     | 0.615<br>(0.390)            |
| Cap. Highways             | 0.407<br>(0.294)            | <b>0.407**</b><br>(0.179)   | <b>0.383**</b><br>(0.150)    | <b>0.337***</b><br>(0.105)  |
| Cur. Highways             | 0.316<br>(0.597)            | 0.316<br>(0.423)            | 0.232<br>(0.455)             | 0.261<br>(0.403)            |
| Cap. Transit              | -0.591<br>(0.378)           | -0.591<br>(0.514)           | -0.666<br>(0.563)            | -0.586<br>(0.549)           |
| Cur. Transit              | 1.531<br>(0.992)            | <b>1.531***</b><br>(0.549)  | <b>1.477**</b><br>(0.594)    | <b>1.576***</b><br>(0.550)  |
| Cap. Airports             | <b>0.612**</b><br>(0.230)   | <b>0.612***</b><br>(0.175)  | <b>0.535***</b><br>(0.162)   | <b>0.698***</b><br>(0.224)  |
| Cur. Airports             | <b>0.812**</b><br>(0.362)   | <b>0.812**</b><br>(0.320)   | <b>0.799***</b><br>(0.203)   | <b>0.909***</b><br>(0.262)  |
| Parking Facilities        | <b>2.072**</b><br>(0.961)   | <b>2.072**</b><br>(0.871)   | <b>2.000***</b><br>(0.542)   | <b>2.073***</b><br>(0.554)  |
| Police Protection         | -0.932<br>(0.614)           | <b>-0.932***</b><br>(0.300) | <b>-1.128***</b><br>(0.371)  | <b>-1.043**</b><br>(0.388)  |
| Fire Protection           | -0.385<br>(0.943)           | -0.385<br>(0.842)           | -0.589<br>(0.790)            | -0.445<br>(0.818)           |
| Cap. Parks & Rec.         | <b>-0.559**</b><br>(0.268)  | -0.559<br>(0.360)           | <b>-0.526*</b><br>(0.291)    | -0.470<br>(0.303)           |
| Cur. Parks & Rec.         | <b>-1.813**</b><br>(0.807)  | <b>-1.813**</b><br>(0.680)  | <b>-1.810**</b><br>(0.709)   | <b>-1.898**</b><br>(0.717)  |
| Housing & Comm. Dev.      | 0.0381<br>(0.287)           | 0.0381<br>(0.170)           | -0.0368<br>(0.121)           | -0.0185<br>(0.172)          |

*The estimation results continue on the next page with the results for the control variables. Please find the notes for this table at the end of estimation results (next page).*

Table D2 continued.

| Estimation strategy           | State cluster                | 2 DK lags                   | Per capita                  | Lagged $\Delta$ HPI         |
|-------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|
| Initial HPI                   | <b>-0.710***</b><br>(0.0299) | <b>-0.710***</b><br>(0.142) | <b>-0.711***</b><br>(0.175) | <b>-0.593**</b><br>(0.230)  |
| Total Outstanding Debt (% PI) | 0.251<br>(0.222)             | 0.251<br>(0.150)            |                             | <b>0.200**</b><br>(0.0931)  |
| Total Cash Holdings (% PI)    | -0.335<br>(0.321)            | -0.335<br>(0.235)           |                             | -0.275<br>(0.239)           |
| % Aged > 65                   | -1.783<br>(1.485)            | <b>-1.783**</b><br>(0.834)  | <b>-1.931**</b><br>(0.719)  | <b>-2.109**</b><br>(0.873)  |
| % Aged > 18 & < 40            | <b>-1.922**</b><br>(0.905)   | <b>-1.922***</b><br>(0.686) | <b>-1.964***</b><br>(0.569) | <b>-2.169***</b><br>(0.621) |
| % Non-White                   | 0.0757<br>(0.369)            | 0.0757<br>(0.373)           | 0.0766<br>(0.414)           | 0.253<br>(0.467)            |
| % Student                     | 0.589<br>(0.535)             | <b>0.589*</b><br>(0.287)    | <b>0.659**</b><br>(0.299)   | <b>0.598**</b><br>(0.244)   |
| ln(Personal Income p.c.)      | -0.0700<br>(0.130)           | -0.0700<br>(0.0848)         | 0.129<br>(0.0969)           | -0.0651<br>(0.0973)         |
| ln(Population)                | <b>0.258***</b><br>(0.0938)  | <b>0.258***</b><br>(0.0794) | <b>0.257***</b><br>(0.0822) | <b>0.266***</b><br>(0.0790) |
| Unemployment %                | <b>-4.171***</b><br>(0.560)  | <b>-4.171***</b><br>(1.486) | <b>-4.189**</b><br>(1.709)  | <b>-4.863***</b><br>(1.527) |
| Lagged $\Delta$ HPI           |                              |                             |                             | -0.177<br>(0.114)           |
| R-squared                     | 0.706                        |                             |                             |                             |
| Observations                  | 3,510                        | 3,510                       | 3,510                       | 3,510                       |
| Number of cities              | 135                          | 135                         | 135                         | 135                         |

Note: these are robustness estimations, using various different techniques. The first estimation uses State-clustered standard errors. The second estimation uses the Driscoll-Kraay estimator including up to two lags. The third estimation normalizes total expenditures and the budget surplus per capita instead of per capita income. The fourth estimation includes lagged  $\Delta$  HPI. The results remain similar. All explanatory variables are lagged five years. All estimations include two-way fixed effects. Robust standard errors in parentheses (\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ ).

**Table D3:** Estimations for all direct expenditure components

| EXP of interest            | Lags                         |                             |                             |                             |                             |
|----------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
|                            | 1                            | 2                           | 3                           | 4                           | 5                           |
| Direct expenditures        | <b>-0.168***</b><br>(0.0568) | <b>-0.484***</b><br>(0.111) | <b>-0.759***</b><br>(0.212) | <b>-0.879**</b><br>(0.354)  | <b>-0.929*</b><br>(0.530)   |
| 1. Education               | <b>-0.0559*</b><br>(0.0278)  | <b>-0.104*</b><br>(0.0541)  | -0.142<br>(0.0925)          | -0.188<br>(0.135)           | -0.250<br>(0.162)           |
| a) K-12 Education          | <b>-0.0487*</b><br>(0.0273)  | <b>-0.0909*</b><br>(0.0512) | -0.123<br>(0.0859)          | -0.168<br>(0.124)           | -0.230<br>(0.145)           |
| b) Higher Education        | <b>-0.135*</b><br>(0.0684)   | -0.206<br>(0.191)           | -0.181<br>(0.325)           | 0.0332<br>(0.465)           | 0.451<br>(0.613)            |
| c) Libraries               | <b>-0.429*</b><br>(0.239)    | -0.819<br>(0.567)           | -1.248<br>(0.914)           | -1.549<br>(1.217)           | -1.925<br>(1.474)           |
| 2. Health & Welfare        | -0.0125<br>(0.0602)          | -0.0308<br>(0.113)          | -0.0545<br>(0.161)          | -0.0892<br>(0.208)          | -0.113<br>(0.256)           |
| a) Hospitals               | 0.00378<br>(0.0360)          | -0.0136<br>(0.0698)         | -0.0385<br>(0.105)          | -0.0574<br>(0.145)          | -0.0491<br>(0.194)          |
| b) Health                  | 0.153<br>(0.200)             | 0.444<br>(0.352)            | <b>0.808*</b><br>(0.423)    | <b>1.130**</b><br>(0.465)   | <b>1.293**</b><br>(0.539)   |
| c) Public Welfare          | <b>-0.251*</b><br>(0.134)    | <b>-0.536**</b><br>(0.250)  | <b>-0.839**</b><br>(0.359)  | <b>-1.144**</b><br>(0.449)  | <b>-1.362**</b><br>(0.526)  |
| 3. Transportation          | <b>0.150***</b><br>(0.0273)  | <b>0.316***</b><br>(0.0589) | <b>0.463***</b><br>(0.104)  | <b>0.570***</b><br>(0.164)  | <b>0.610**</b><br>(0.231)   |
| a) Highways                | 0.0433<br>(0.0296)           | <b>0.132*</b><br>(0.0649)   | <b>0.251**</b><br>(0.118)   | <b>0.362*</b><br>(0.193)    | 0.431<br>(0.283)            |
| b) Parking Facilities      | <b>0.300*</b><br>(0.159)     | <b>0.689**</b><br>(0.330)   | <b>1.131**</b><br>(0.513)   | <b>1.597***</b><br>(0.565)  | <b>2.006***</b><br>(0.606)  |
| c) Airports                | <b>0.227***</b><br>(0.0464)  | <b>0.441***</b><br>(0.0808) | <b>0.605***</b><br>(0.120)  | <b>0.701***</b><br>(0.176)  | <b>0.743***</b><br>(0.244)  |
| d) Seaports                | 0.0336<br>(0.119)            | 0.0631<br>(0.231)           | 0.00528<br>(0.339)          | -0.108<br>(0.417)           | -0.447<br>(0.545)           |
| 4. Public Safety           | <b>-0.252**</b><br>(0.105)   | <b>-0.500**</b><br>(0.186)  | <b>-0.691***</b><br>(0.245) | <b>-0.791***</b><br>(0.263) | <b>-0.750**</b><br>(0.286)  |
| a) Police Protection       | <b>-0.261**</b><br>(0.115)   | <b>-0.566***</b><br>(0.183) | <b>-0.822***</b><br>(0.203) | <b>-0.974***</b><br>(0.166) | <b>-0.866***</b><br>(0.206) |
| b) Fire Protection         | -0.351<br>(0.235)            | -0.633<br>(0.443)           | -0.832<br>(0.580)           | -0.862<br>(0.607)           | -0.815<br>(0.598)           |
| c) Corrections             | <b>-0.193*</b><br>(0.101)    | -0.398<br>(0.239)           | -0.603<br>(0.405)           | -0.831<br>(0.569)           | -1.096<br>(0.681)           |
| d) Inspection & Regulation | <b>-1.140*</b><br>(0.629)    | <b>-1.976*</b><br>(1.064)   | <b>-2.214*</b><br>(1.103)   | <b>-1.838*</b><br>(0.959)   | -0.763<br>(1.654)           |

*The estimation results continue on the next page. Please find the notes for this table at the end of estimation results (next page).*

Table D3 continued

| EXP of interest               | Lags                        |                             |                             |                             |                             |
|-------------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
|                               | 1                           | 2                           | 3                           | 4                           | 5                           |
| 5. Environment & Housing      | -0.0354<br>(0.0260)         | -0.0876<br>(0.0566)         | <b>-0.147*</b><br>(0.0799)  | -0.168<br>(0.105)           | -0.171<br>(0.117)           |
| a) Housing & Com. Dev.        | -0.0345<br>(0.0553)         | -0.0306<br>(0.114)          | 0.00670<br>(0.170)          | 0.114<br>(0.207)            | 0.209<br>(0.231)            |
| b) Parks & Recreation         | -0.0146<br>(0.0418)         | -0.0886<br>(0.0731)         | <b>-0.261**</b><br>(0.123)  | <b>-0.490**</b><br>(0.228)  | <b>-0.704**</b><br>(0.313)  |
| c) Sewers                     | -0.0216<br>(0.0255)         | -0.0558<br>(0.0556)         | -0.0741<br>(0.0720)         | -0.0446<br>(0.108)          | 0.0103<br>(0.201)           |
| d) Solid Waste Management     | <b>0.124*</b><br>(0.0723)   | 0.134<br>(0.109)            | 0.144<br>(0.152)            | 0.228<br>(0.229)            | 0.396<br>(0.397)            |
| e) Natural Resources          | <b>-0.171*</b><br>(0.0976)  | <b>-0.370**</b><br>(0.173)  | <b>-0.544**</b><br>(0.237)  | <b>-0.662**</b><br>(0.272)  | <b>-0.694**</b><br>(0.307)  |
| 6. Gov. Adm.                  | -0.0889<br>(0.0908)         | <b>-0.250*</b><br>(0.140)   | <b>-0.444***</b><br>(0.146) | <b>-0.629***</b><br>(0.156) | <b>-0.612***</b><br>(0.169) |
| a) Financial Administration   | -0.143<br>(0.179)           | -0.399<br>(0.347)           | -0.773<br>(0.468)           | <b>-1.160**</b><br>(0.554)  | <b>-1.183*</b><br>(0.641)   |
| b) Judicial & Legal           | -0.849<br>(0.555)           | <b>-2.211*</b><br>(1.129)   | <b>-3.762**</b><br>(1.594)  | <b>-5.143**</b><br>(1.965)  | <b>-5.691**</b><br>(2.256)  |
| c) General Public Buildings   | 0.00447<br>(0.0720)         | -0.0430<br>(0.142)          | -0.106<br>(0.224)           | -0.278<br>(0.299)           | -0.518<br>(0.359)           |
| d) Other Gov. Adm.            | 0.0527<br>(0.0904)          | 0.137<br>(0.173)            | 0.226<br>(0.295)            | 0.383<br>(0.395)            | 0.702<br>(0.449)            |
| 7. Interest on General Debt   | <b>0.134*</b><br>(0.0738)   | 0.243<br>(0.171)            | 0.316<br>(0.269)            | 0.381<br>(0.334)            | 0.465<br>(0.353)            |
| 8. Miscellaneous              | 0.0288<br>(0.0300)          | 0.0557<br>(0.0674)          | 0.0575<br>(0.106)           | 0.0636<br>(0.135)           | 0.0763<br>(0.151)           |
| a) Commercial Activities      | <b>0.728**</b><br>(0.352)   | <b>1.369**</b><br>(0.626)   | <b>1.887**</b><br>(0.751)   | <b>2.054***</b><br>(0.616)  | <b>1.855***</b><br>(0.516)  |
| b) Other General Expenditures | 0.0243<br>(0.0303)          | 0.0473<br>(0.0679)          | 0.0458<br>(0.107)           | 0.0507<br>(0.136)           | 0.0647<br>(0.151)           |
| 9. Utility expenditures       | <b>0.0550**</b><br>(0.0211) | <b>0.115***</b><br>(0.0380) | <b>0.211***</b><br>(0.0515) | <b>0.308***</b><br>(0.0581) | <b>0.354***</b><br>(0.0596) |
| a) Water Supply               | <b>0.0749*</b><br>(0.0369)  | 0.140<br>(0.0871)           | 0.207<br>(0.137)            | 0.240<br>(0.207)            | 0.271<br>(0.249)            |
| b) Transit                    | 0.0799<br>(0.102)           | 0.220<br>(0.221)            | 0.338<br>(0.310)            | 0.430<br>(0.336)            | 0.327<br>(0.375)            |
| c) Electric                   | 0.0304<br>(0.0278)          | 0.0709<br>(0.0538)          | <b>0.192**</b><br>(0.0888)  | <b>0.344**</b><br>(0.133)   | <b>0.412***</b><br>(0.140)  |
| d) Gas                        | -0.0788<br>(0.128)          | -0.221<br>(0.283)           | -0.408<br>(0.424)           | -0.484<br>(0.524)           | -0.257<br>(0.537)           |
| 10. Liquor Store              | -1.094<br>(1.095)           | -1.664<br>(1.947)           | -1.109<br>(3.642)           | 2.379<br>(5.835)            | 8.692<br>(7.583)            |
| Observations                  | 4,050                       | 3,915                       | 3,780                       | 3,645                       | 3,510                       |
| Number of cities              | 135                         | 135                         | 135                         | 135                         | 135                         |

Note: even though the variables are shown below one-another, they are not included in the same estimations; each coefficient for each variable represents a separate estimation. The control variables are not shown here but they include the same control variables as found in our preferred estimation (economy in table 3): Initial HPI, Total Outstanding Debt (% PI), Total Cash Holdings (% PI), % Aged > 65, % Aged > 18 & < 40, % Non-White, % Student, ln(Personal Income p.c.), ln(Population), and Unemployment %. All estimations include two-way fixed effects. The Driscoll-Kraay estimator include up to six-lags. Robust standard errors in parentheses (\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ ).

**Table D4:** Estimations for all total expenditure components

| EXP of interest           | Lags                         |                             |                              |                             |                             |
|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|-----------------------------|
|                           | 1                            | 2                           | 3                            | 4                           | 5                           |
| A. Intergovernmental      | <b>0.168***</b><br>(0.0568)  | <b>0.485***</b><br>(0.111)  | <b>0.759***</b><br>(0.212)   | <b>0.879**</b><br>(0.354)   | <b>0.929*</b><br>(0.530)    |
| B. Direct Expenditures    | <b>-0.168***</b><br>(0.0568) | <b>-0.484***</b><br>(0.111) | <b>-0.759***</b><br>(0.212)  | <b>-0.879**</b><br>(0.354)  | <b>-0.929*</b><br>(0.530)   |
| 1. Current Operations     | -0.00343<br>(0.0235)         | 0.0182<br>(0.0417)          | 0.0561<br>(0.0593)           | 0.101<br>(0.0690)           | <b>0.151**</b><br>(0.0712)  |
| 2. Capital Outlay         | 0.00561<br>(0.0181)          | -0.00337<br>(0.0326)        | -0.0166<br>(0.0487)          | -0.0350<br>(0.0556)         | -0.0699<br>(0.0519)         |
| a) Construction           | 0.0231<br>(0.0250)           | 0.0346<br>(0.0432)          | 0.0390<br>(0.0623)           | 0.0278<br>(0.0719)          | 0.00995<br>(0.0788)         |
| b) Equipment & Land       | <b>-0.0591*</b><br>(0.0299)  | <b>-0.123**</b><br>(0.0531) | <b>-0.174***</b><br>(0.0573) | <b>-0.190**</b><br>(0.0718) | <b>-0.230*</b><br>(0.112)   |
| 3. Assistance & Subsidies | <b>-0.546**</b><br>(0.213)   | <b>-1.348***</b><br>(0.383) | <b>-2.226***</b><br>(0.559)  | <b>-3.004***</b><br>(0.747) | <b>-3.526***</b><br>(0.917) |
| 4. Interest on Debt       | <b>0.134**</b><br>(0.0607)   | 0.224<br>(0.142)            | 0.261<br>(0.227)             | 0.290<br>(0.289)            | 0.344<br>(0.326)            |
| Exhibit: Salaries & Wages | -0.0164<br>(0.0238)          | -0.0395<br>(0.0405)         | -0.0563<br>(0.0510)          | -0.0583<br>(0.0619)         | -0.0238<br>(0.0735)         |
| Observations              | 4,050                        | 3,915                       | 3,780                        | 3,645                       | 3,510                       |
| Number of cities          | 135                          | 135                         | 135                          | 135                         | 135                         |

*Note: even though the variables are shown below one-another, they are not included in the same estimations; each coefficient for each variable represents a separate estimation. The control variables are not shown here but they include the same control variables as found in our preferred estimation (economy in table 3): Initial HPI, Total Outstanding Debt (% PI), Total Cash Holdings (% PI), % Aged > 65, % Aged > 18 & < 40, % Non-White, % Student, ln(Personal Income p.c.), ln(Population), and Unemployment %. All estimations include two-way fixed effects. The Driscoll-Kraay estimator include up to six-lags. Robust standard errors in parentheses (\*\*\*)  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ ).*

**Table D5:** Estimations for all available capital outlay components

| CAP of interest           | Lags                         |                              |                              |                              |                              |
|---------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
|                           | 1                            | 2                            | 3                            | 4                            | 5                            |
| A. General Capital Outlay | 0.0124<br>(0.0227)           | -0.00412<br>(0.0450)         | -0.0478<br>(0.0639)          | -0.0885<br>(0.0710)          | <b>-0.136*</b><br>(0.0694)   |
| 1) K-12 Education         | -0.0231<br>(0.0368)          | -0.0807<br>(0.0749)          | -0.145<br>(0.119)            | -0.193<br>(0.173)            | -0.263<br>(0.201)            |
| 2) Airports & Seaports    | <b>0.204***</b><br>(0.0459)  | <b>0.402***</b><br>(0.0777)  | <b>0.546***</b><br>(0.117)   | <b>0.613***</b><br>(0.179)   | <b>0.613**</b><br>(0.247)    |
| 3) Highways               | 0.0516<br>(0.0422)           | 0.110<br>(0.0725)            | <b>0.224*</b><br>(0.115)     | <b>0.343**</b><br>(0.142)    | <b>0.443**</b><br>(0.169)    |
| 4) Housing & Com. Dev.    | -0.0685<br>(0.0982)          | -0.0890<br>(0.193)           | -0.115<br>(0.261)            | -0.0829<br>(0.293)           | -0.0899<br>(0.368)           |
| 5) Parks & Recreation     | 0.0781<br>(0.0612)           | 0.108<br>(0.103)             | 0.0395<br>(0.115)            | -0.127<br>(0.154)            | -0.359<br>(0.250)            |
| 6) Sewers                 | <b>-0.108***</b><br>(0.0196) | <b>-0.245***</b><br>(0.0471) | <b>-0.354***</b><br>(0.0544) | <b>-0.406***</b><br>(0.0906) | <b>-0.399*</b><br>(0.206)    |
| 7) Other General          | <b>-0.0543**</b><br>(0.0209) | <b>-0.129***</b><br>(0.0354) | <b>-0.233***</b><br>(0.0454) | <b>-0.306***</b><br>(0.0401) | <b>-0.332***</b><br>(0.0353) |
| B. Utility Capital Outlay | -0.0222<br>(0.0207)          | 0.00178<br>(0.0578)          | 0.104<br>(0.0860)            | <b>0.184*</b><br>(0.105)     | <b>0.220*</b><br>(0.112)     |
| 1. Water Supply           | 0.0404<br>(0.0542)           | 0.0755<br>(0.116)            | 0.135<br>(0.155)             | 0.142<br>(0.216)             | 0.182<br>(0.224)             |
| 2. Transit                | -0.232<br>(0.154)            | -0.392<br>(0.300)            | -0.445<br>(0.407)            | -0.297<br>(0.480)            | -0.298<br>(0.584)            |
| 3. Electric               | -0.0428<br>(0.0479)          | 0.0276<br>(0.104)            | 0.242<br>(0.177)             | <b>0.418**</b><br>(0.189)    | <b>0.431***</b><br>(0.128)   |
| 4. Gas                    | -0.179<br>(0.258)            | -0.167<br>(0.474)            | 0.00967<br>(0.643)           | 0.147<br>(0.670)             | 0.663<br>(0.728)             |
| Observations              | 4,050                        | 3,915                        | 3,780                        | 3,645                        | 3,510                        |
| Number of cities          | 135                          | 135                          | 135                          | 135                          | 135                          |

*Note: even though the variables are shown below one-another, they are not included in the same estimations; each coefficient for each variable represents a separate estimation. The control variables are not shown here but they include the same control variables as found in our preferred estimation (economy in table 3): Initial HPI, Total Outstanding Debt (% PI), Total Cash Holdings (% PI), % Aged > 65, % Aged > 18 & < 40, % Non-White, % Student, ln(Personal Income p.c.), ln(Population), and Unemployment %. All estimations include two-way fixed effects. The Driscoll-Kraay estimator include up to six-lags. Robust standard errors in parentheses (\*\*\*)  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .*

**Table D6:** Estimations for all available current operations expenditure components

| CUR of interest               | Lags                         |                              |                             |                             |                            |
|-------------------------------|------------------------------|------------------------------|-----------------------------|-----------------------------|----------------------------|
|                               | 1                            | 2                            | 3                           | 4                           | 5                          |
| A. General Current Operations | <b>-0.0454**</b><br>(0.0214) | <b>-0.0745**</b><br>(0.0354) | <b>-0.0945*</b><br>(0.0544) | -0.108<br>(0.0696)          | -0.0931<br>(0.0791)        |
| 1) K-12 Education             | <b>-0.0587*</b><br>(0.0292)  | <b>-0.0944*</b><br>(0.0482)  | -0.114<br>(0.0802)          | -0.157<br>(0.118)           | -0.218<br>(0.144)          |
| 2) Airports & Seaports        | 0.0451<br>(0.0642)           | 0.0621<br>(0.107)            | 0.0977<br>(0.121)           | 0.197<br>(0.117)            | <b>0.414**</b><br>(0.165)  |
| 3) Highways                   | 0.00949<br>(0.0903)          | 0.162<br>(0.180)             | 0.264<br>(0.325)            | 0.323<br>(0.506)            | 0.286<br>(0.660)           |
| 4) Housing & Com. Dev.        | -0.0216<br>(0.0602)          | -0.00813<br>(0.112)          | 0.0546<br>(0.158)           | 0.193<br>(0.192)            | 0.335<br>(0.205)           |
| 5) Parks & Recreation         | <b>-0.379***</b><br>(0.0911) | <b>-0.859***</b><br>(0.255)  | <b>-1.438***</b><br>(0.493) | <b>-1.887***</b><br>(0.679) | <b>-2.015**</b><br>(0.735) |
| 6) Sewers                     | <b>0.269***</b><br>(0.0766)  | <b>0.582***</b><br>(0.136)   | <b>0.886***</b><br>(0.196)  | <b>1.217***</b><br>(0.267)  | <b>1.472***</b><br>(0.311) |
| 7) Other General              | <b>0.0679**</b><br>(0.0273)  | <b>0.152**</b><br>(0.0563)   | <b>0.233***</b><br>(0.0833) | <b>0.297**</b><br>(0.112)   | <b>0.337**</b><br>(0.140)  |
| B. Utility Current Operations | <b>0.126***</b><br>(0.0304)  | <b>0.216***</b><br>(0.0371)  | <b>0.298***</b><br>(0.0439) | <b>0.394***</b><br>(0.0717) | <b>0.445***</b><br>(0.112) |
| 1. Water Supply               | <b>0.179**</b><br>(0.0755)   | <b>0.338**</b><br>(0.153)    | <b>0.448*</b><br>(0.229)    | 0.538<br>(0.325)            | 0.561<br>(0.444)           |
| 2. Transit                    | <b>0.635**</b><br>(0.289)    | <b>1.333*</b><br>(0.661)     | <b>1.824**</b><br>(0.860)   | <b>1.875**</b><br>(0.734)   | <b>1.562**</b><br>(0.574)  |
| 3. Electric                   | <b>0.0611*</b><br>(0.0351)   | 0.0847<br>(0.0653)           | <b>0.145*</b><br>(0.0833)   | <b>0.265**</b><br>(0.120)   | <b>0.351**</b><br>(0.169)  |
| 4. Gas                        | -0.0582<br>(0.177)           | -0.223<br>(0.365)            | -0.470<br>(0.539)           | -0.588<br>(0.622)           | -0.430<br>(0.603)          |
| Observations                  | 4,050                        | 3,915                        | 3,780                       | 3,645                       | 3,510                      |
| Number of cities              | 135                          | 135                          | 135                         | 135                         | 135                        |

*Note: even though the variables are shown below one-another, they are not included in the same estimations; each coefficient for each variable represents a separate estimation. The control variables are not shown here but they include the same control variables as found in our preferred estimation (economy in table 3): Initial HPI, Total Outstanding Debt (% PI), Total Cash Holdings (% PI), % Aged > 65, % Aged > 18 & < 40, % Non-White, % Student, ln(Personal Income p.c.), ln(Population), and Unemployment %. All estimations include two-way fixed effects. The Driscoll-Kraay estimator include up to six-lags. Robust standard errors in parentheses (\*\*\*)  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .*

## Supplementary Material E: Crime estimations

**Table E1:** Driscoll-Kraay estimator overlapping estimation results with crime controls

| Control structure:        | $\Delta \ln(\text{Population})$ |                              | $\Delta \text{HPI}$         |                              |
|---------------------------|---------------------------------|------------------------------|-----------------------------|------------------------------|
|                           | Economy                         | Crime                        | Economy                     | Crime                        |
| Total Expenditures (% PI) | <b>-0.185***</b><br>(0.0642)    | <b>-0.187***</b><br>(0.0644) | <b>-0.960*</b><br>(0.470)   | <b>-0.821*</b><br>(0.472)    |
| Budget Surplus (% PI)     | 0.00531<br>(0.120)              | 0.00856<br>(0.113)           | <b>1.202***</b><br>(0.392)  | <b>1.351***</b><br>(0.411)   |
| Higher Education          | <b>0.512***</b><br>(0.127)      | <b>0.530***</b><br>(0.125)   | 0.309<br>(0.333)            | 0.381<br>(0.333)             |
| Cap. K-12 Education       | 0.00162<br>(0.0333)             | 0.000486<br>(0.0341)         | <b>-0.332***</b><br>(0.111) | <b>-0.329***</b><br>(0.0957) |
| Cur. K-12 Education       | <b>-0.0494*</b><br>(0.0277)     | -0.0503<br>(0.0304)          | -0.00910<br>(0.105)         | -0.0207<br>(0.119)           |
| Libraries                 | <b>-0.522***</b><br>(0.139)     | <b>-0.490***</b><br>(0.113)  | -2.947<br>(1.842)           | -2.663<br>(1.685)            |
| Public Welfare            | <b>-0.0596*</b><br>(0.0286)     | -0.0488<br>(0.0298)          | <b>-2.323***</b><br>(0.768) | <b>-2.151***</b><br>(0.734)  |
| Hospitals                 | -0.0201<br>(0.0265)             | -0.00387<br>(0.0248)         | <b>-0.329**</b><br>(0.123)  | <b>-0.210*</b><br>(0.121)    |
| Health                    | <b>0.232***</b><br>(0.0554)     | <b>0.273***</b><br>(0.0590)  | <b>1.065**</b><br>(0.492)   | <b>1.260**</b><br>(0.516)    |
| Cap. Highways             | <b>0.136***</b><br>(0.0421)     | <b>0.112**</b><br>(0.0454)   | <b>0.454*</b><br>(0.239)    | <b>0.402*</b><br>(0.232)     |
| Cur. Highways             | -0.0484<br>(0.100)              | -0.0326<br>(0.103)           | -0.398<br>(0.406)           | -0.241<br>(0.368)            |
| Cap. Transit              | -0.122<br>(0.178)               | -0.0970<br>(0.155)           | <b>-1.466**</b><br>(0.536)  | <b>-1.463**</b><br>(0.581)   |
| Cur. Transit              | <b>-0.294*</b><br>(0.154)       | <b>-0.326**</b><br>(0.151)   | <b>3.086***</b><br>(0.562)  | <b>2.913***</b><br>(0.514)   |
| Cap. Airports             | -0.00469<br>(0.0215)            | -0.0323<br>(0.0260)          | <b>0.667***</b><br>(0.164)  | <b>0.577***</b><br>(0.173)   |
| Cur. Airports             | <b>-0.181**</b><br>(0.0866)     | <b>-0.233**</b><br>(0.102)   | <b>0.567**</b><br>(0.216)   | 0.293<br>(0.257)             |
| Parking Facilities        | <b>0.872***</b><br>(0.128)      | <b>0.905***</b><br>(0.121)   | 0.551<br>(0.816)            | 0.715<br>(0.886)             |
| Police Protection         | <b>0.165***</b><br>(0.0495)     | <b>0.145***</b><br>(0.0483)  | -0.613<br>(0.372)           | <b>-0.721*</b><br>(0.356)    |
| Fire Protection           | <b>-0.145*</b><br>(0.0785)      | <b>-0.179*</b><br>(0.0908)   | -0.637<br>(0.850)           | -0.814<br>(0.829)            |
| Cap. Parks & Rec.         | -0.0382<br>(0.0265)             | -0.0332<br>(0.0298)          | <b>-0.603*</b><br>(0.346)   | -0.565<br>(0.337)            |
| Cur. Parks & Rec.         | 0.0641<br>(0.0837)              | 0.0665<br>(0.104)            | <b>-2.861***</b><br>(0.693) | <b>-2.751***</b><br>(0.554)  |
| Housing & Comm. Dev.      | <b>0.0538**</b><br>(0.0244)     | 0.0209<br>(0.0312)           | <b>-0.497***</b><br>(0.110) | <b>-0.623***</b><br>(0.0955) |

*The estimation results continue on the next page with the results for the control variables. Please find the notes for this table at the end of estimation results (next page).*

Table E1 continued

| Control structure:                 | $\Delta \ln(\text{Population})$ |                                | $\Delta \text{HPI}$         |                                |
|------------------------------------|---------------------------------|--------------------------------|-----------------------------|--------------------------------|
|                                    | Economy                         | Crime                          | Economy                     | Crime                          |
| Initial $\ln(\text{Population})$   | <b>-0.173***</b><br>(0.0141)    | <b>-0.162***</b><br>(0.0146)   | 0.111<br>(0.116)            | 0.128<br>(0.128)               |
| Initial HPI                        | <b>-0.0413***</b><br>(0.00987)  | <b>-0.0441***</b><br>(0.00946) | <b>-0.835***</b><br>(0.176) | <b>-0.839***</b><br>(0.176)    |
| Total Outstanding Debt (% PI)      | -0.0332<br>(0.0314)             | -0.0393<br>(0.0331)            | 0.367<br>(0.260)            | 0.336<br>(0.266)               |
| Total Cash Holdings (% PI)         | -0.0331<br>(0.0217)             | -0.0154<br>(0.0195)            | <b>-0.723**</b><br>(0.274)  | <b>-0.645**</b><br>(0.251)     |
| % Aged > 65                        | 0.0985<br>(0.146)               | 0.209<br>(0.145)               | 1.450<br>(1.407)            | 2.013<br>(1.324)               |
| % Aged > 18 & < 40                 | -0.0249<br>(0.152)              | 0.00875<br>(0.156)             | -0.440<br>(0.715)           | -0.219<br>(0.609)              |
| % Non-White                        | <b>-0.182***</b><br>(0.0379)    | <b>-0.143***</b><br>(0.0359)   | 0.0114<br>(0.538)           | 0.211<br>(0.555)               |
| % Student                          | 0.0352<br>(0.113)               | 0.0471<br>(0.118)              | <b>1.156**</b><br>(0.549)   | <b>1.162*</b><br>(0.558)       |
| $\ln(\text{Personal Income p.c.})$ | 0.00122<br>(0.0242)             | -0.00125<br>(0.0240)           | -0.0278<br>(0.125)          | -0.0384<br>(0.120)             |
| Unemployment %                     | <b>-0.665***</b><br>(0.159)     | <b>-0.661***</b><br>(0.158)    | <b>-4.922***</b><br>(1.578) | <b>-4.726***</b><br>(1.531)    |
| Violent rate                       |                                 | <b>-0.0133***</b><br>(0.00383) |                             | -0.0129<br>(0.0112)            |
| Property rate                      |                                 | -0.00118<br>(0.000997)         |                             | <b>-0.0225***</b><br>(0.00387) |
| Observations                       | 2,093                           | 2,093                          | 2,093                       | 2,093                          |
| Number of cities                   | 113                             | 113                            | 113                         | 113                            |

Note: All explanatory variables capture the initial values, not five-year averages. The top row signals the control structure. The estimations include two-way fixed effects. The Driscoll-Kraay estimator includes up to six-year lags. Robust standard errors in parentheses (\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ ).

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