Supplementary files

SF1. Descriptive statistics for four impact indexes at the state level

|        | OSI   | ERI   | OCI   | FSI   |
|--------|-------|-------|-------|-------|
| mean   | -0.48 | -0.53 | -0.17 | -0.31 |
| std    | 0.09  | 0.07  | 0.08  | 0.03  |
| min    | -0.77 | -0.7  | -0.54 | -0.44 |
| 25%    | -0.53 | -0.58 | -0.2  | -0.32 |
| 50%    | -0.47 | -0.54 | -0.15 | -0.31 |
| 75%    | -0.41 | -0.49 | -0.12 | -0.29 |
| max    | -0.19 | -0.21 | -0.02 | -0.23 |
| Obs.   | 1920  | 1920  | 1920  | 1296  |

SF2. Pairwise Pearson’s correlation coefficients among four Indexes

Note: All of the coefficients are statistically significant at the 1% level.

SF3. Pairwise Pearson’s Correlation Coefficients among Longitudinal Independent Variables
Note: All the above Pearson’s correlation coefficients are statistically significant at the 5% level, except for those between: IR and WCI, IR and SHRI, IR and FCI, ICI and SHRI, DCI and Assis, Assis and FCI, and SHRI and FCI.

SF4. Herfindahl–Hirschman Index (HHI) across the States
SF5. Percentage of “High-Status” Industries (HSI) across the States

SF6. Percentage of Workers in Essential Industries across the States

SF7. The Socioeconomic Vulnerability Indexes across the States
SF8. Percentage of Urban Areas and Political Partisanship across the States

Percentage of urban areas (AREAPCT_URBAN)  

SF9. Pairwise Pearson’s Correlation Coefficients among Cross-sectional Independent Variables
Note: The Pearson’s correlation coefficients between the following variables are statistically significant at the 5% level: HHI and Essential, HHI and HSI, Essential and HSI, Essential and EssMinority, Essential and VI, Essential and AREAPCT_URBAN, HSI and AREAPCT, HSI and AREAPCT_URBAN, and EssMinority and CRE3.
SF10 (a) Modeling the trajectories with quadratic function (48 contiguous U.S. States) – Phases 1-3

| Parameter          | Overall Sentiment Index (OSI) | Expected Recovery Index (ERI) | Operational Challenges Index (OCI) | Financial Stress Index (FSI) |
|--------------------|--------------------------------|-------------------------------|-----------------------------------|-----------------------------|
| Intercept          | $\beta_{00}$                   | -0.6623 (0.0091)              | -0.6102 (0.0075) **               | -0.3634 (0.0074) ***        |
| HHI                | $\beta_{01}$                   | 0.0375 (1.2589)               | -0.2343 (0.9816) ***             | 0.6285 (0.7524) ***         |
| Essential          | $\beta_{02}$                   | 0.4168 (0.2510)               | 0.2093 (0.1958)                  | 0.1507 (0.1505)             |
| EssMinority        | $\beta_{03}$                   | 0.0000 (0.0546)               | -0.0106 (0.0426)                 | 0.0273 (0.0326)             |
| HSI                | $\beta_{04}$                   | -0.0916 (0.2255)              | -0.2208 (0.1758)                 | 0.2054 (0.1349)             |
| VI                 | $\beta_{05}$                   | 0.0165 (0.2691)               | -0.3031 (0.2098)                 | 0.1498 (0.1608)             |
| CRE3               | $\beta_{06}$                   | -0.0064 (0.0026)              | -0.0027 (0.0020)                 | -0.0006 (0.0015)           |
| AREAPCT_URBAN      | $\beta_{08}$                   | -0.1119 (0.0505)              | -0.0930 (0.0395) *               | -0.0315 (0.0306)           |
| Party (Republican) | $\beta_{09}$                   | 0.0246 (0.0094) **            | 0.0283 (0.0073) ***              | 0.0079 (0.0057)            |
| Rate of change, $\pi_{0i}$ | $\beta_{w10}$                | 1.5280 (0.0623) ***          | 0.6462 (0.0543) ***             | 1.7307 (0.0622) ***        |
| Week               | $\beta_{w20}$                  | -2.7566 (0.1470) ***         | -1.2689 (0.1283) ***             | -3.8884 (0.1472) ***       |
| $Week^2$           |                                 |                               |                                   |                             |
| IR                 | $\beta_{20}$                   | 0.0015 (0.0099)               | -0.0019 (0.0086)                 | -0.0179 (0.0099)           |
| ICI                | $\beta_{30}$                   | -0.2775 (0.0768) ***         | -0.3742 (0.0670) ***             | -0.5836 (0.0770) ***       |
| DCI                | $\beta_{40}$                   | -0.0076 (0.0041)              | 0.0024 (0.0036)                  | -0.0082 (0.0041) *         |
| VCR                | $\beta_{50}$                   | 0.0009 (0.0090)               | 0.0009 (0.0090)                  | 0.0145 (0.0044) **         |
| SCI                | $\beta_{60}$                   | -0.0068 (0.0090)              | -0.0377 (0.0079) ***             | 0.0518 (0.0090) ***        |
| WCI                | $\beta_{70}$                   | -0.0025 (0.0071)              | 0.0148 (0.0061) *                | -0.0361 (0.0069) ***       |
| SHRI               | $\beta_{80}$                   | -0.0081 (0.0085)              | 0.0094 (0.0073)                  | -0.0547 (0.0081) ***       |
| Parameter                        | Overall Sentiment Index (OSI)          | Expected Recovery Index (ERI)          | Operational Challenges Index (OCI) | Financial Stress Index (FSI) |
|---------------------------------|----------------------------------------|----------------------------------------|-----------------------------------|------------------------------|
| Intercept                       | $\beta_{00}$                           | -0.5292 (0.0104)                        | -0.6194 (0.0095) ***               | -0.1611 (0.0064) ***         |
| HHI                             | $\beta_{01}$                           | 0.2126 (1.0493)                         | -0.2626 (0.9733)                   | 0.1759 (0.3788)              |
| Essential                       | $\beta_{02}$                           | 0.2975 (0.2053)                         | 0.4386 (0.1906) *                  | 0.0286 (0.0708)              |
| EssMinority                    | $\beta_{03}$                           | -0.0564 (0.0452)                       | -0.0235 (0.0420)                   | -0.0101 (0.0160)             |
| HSI                             | $\beta_{04}$                           | 0.0975 (0.1863)                         | 0.0555 (0.1729)                    | 0.2087 (0.0658) **           |
| VI                              | $\beta_{05}$                           | 0.0615 (0.2229)                         | 0.1305 (0.2068)                    | 0.1869 (0.0783) *            |
| CRE3                            | $\beta_{06}$                           | -0.0074 (0.0021)                        | -0.0050 (0.0020) **                | -0.0010 (0.0007)             |
| AREAPCT_URBAN                   | $\beta_{08}$                           | -0.0830 (0.0418)                       | -0.0991 (0.0387) *                 | -0.0023 (0.0150)             |
| Party (Republican)             | $\beta_{09}$                           | 0.0193 (0.0080) *                      | 0.0219 (0.0074) **                 | 0.0005 (0.0029)              |
| Rate of change, Week            | $\beta_{w10}$                          | 1.0956 (0.1811) ***                    | 1.4140 (0.1645) ***                | 1.4660 (0.1302) ***          |
| Rate of change, Week$^2$        | $\beta_{w20}$                          | -4.1155 (0.8272) ***                   | -4.8847 (0.7510) ***               | -7.7259 (0.6187) ***         |

SF 10 (b) Modeling the trajectories with quadratic function (48 contiguous U.S. states) – Phases 4-5

| Parameter                        | AIC (4906.7151) | BIC (4798.2073) | Log Likelihood (2474.3575) | Num. obs. (1296) | Num. groups: State (48) |
|----------------------------------|-----------------|-----------------|-----------------------------|------------------|------------------------|
| FCI                              | $\beta_{90}$    | -0.0093 (0.0078) | 0.0028 (0.0068)             | -0.0425 (0.0076) *** | -0.0100 (0.0038) **    |

Note: *** p < 0.001; ** p < 0.01; * p < 0.05; inside the parentheses are standard errors
| Time-varying variable | IR    | ICI    | DCI    | VCR    | SCI    | WCI    | SHRI   | FCI    |
|-----------------------|-------|--------|--------|--------|--------|--------|--------|--------|
|                       | $\beta_{20}$ | $\beta_{30}$ | $\beta_{40}$ | $\beta_{50}$ | $\beta_{60}$ | $\beta_{70}$ | $\beta_{80}$ | $\beta_{90}$ |
|                       | 0.0207 (0.0200) | -0.1967 (0.1194) | 0.0060 (0.0042) | 0.0432 (0.0419) | -0.0037 (0.0180) | 0.0326 (0.0126) | -0.0086 (0.0121) | -0.0275 (0.0135) |
|                       | -0.0071 (0.0182) | -0.1629 (0.1084) | 0.0072 (0.0038) | 0.0562 (0.0380) | -0.0127 (0.0164) | 0.0131 (0.0115) | -0.0039 (0.0110) | -0.0224 (0.0123) |
|                       | 0.0152 (0.0147) | -0.3894 (0.0895) | 0.0064 (0.0032) | 0.0482 (0.0297) | 0.0081 (0.0117) | -0.0002 (0.0075) | -0.0052 (0.0071) | -0.0115 (0.0088) |

Goodness-of-fit (stochastic parts)

|          | AIC     | BIC     | Log Likelihood |
|----------|---------|---------|----------------|
|          | -2391.6072 | -2510.3176 | -2769.2341 |
|          | -2294.1534 | -2412.8638 | -2671.7802 |
|          | 1217.8036 | 1277.1588 | 1406.6170 |

Num. obs. | 620 | 620 | 620 |
Num. groups: State | 48 | 48 | 48 |

Note: *** p < 0.001; ** p < 0.01; * p < 0.05; inside the parentheses are standard errors