

Appendix C. Calculation of coal consumption in prefecture-level city

Coal is the most important fossil fuel for China (Miao, 2017), however, data on coal consumption are not available at the prefecture level (Cao et al., 2019). We can only access to the data of coal consumption across provincial level, which is obtained from *China Energy Statistical Yearbook* (2004–2017). Considering the fact that the energy consumption of the secondary industry accounted for 71.5% of the total energy consumed (Shao et al., 2016; Yang et al., 2018), and leads to high environment pollution (Yin et al., 2019). Thus, we take the proportion of the per secondary industry output of sample cities in their home provinces as the weight value (W), then the province-level coal consumption is allocated to each prefecture-level city using this weight value (W). We also take the ratio of the per capita GDP of sample city in their home provinces as another weight value (WR) for robust analysis, the results using different weights are relatively consistent with each other.

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