RESPONSES TO REFEREE 1'S COMMENTS

To Referee #1,

This letter summarizes our response to Referee 1s report, which begins with "The paper says no existing economic research..." We thank Referee 1 again for the comments we received. Below, we respond to Referee 1's comments point by point.

1. We thank Referee 1 for mentioning the paper by He, Wang and Zhang (2019) to us. It is clear that the paper used a different dataset, which has a panel structure. However, we were not able to trace the exact source of the dataset based on the information in the paper. The dataset does not seem to have an official English translation for its name. Hence we had a hard time trying to pin down the source by its name. Our educated guess is that they were using the firm-level data from *Annual Statistic Report on Environment in China* (in Chinese 中国环境统计年报), but we cannot be 100% sure.

   We talked with our colleagues who have direct access to the above dataset, and learned that there are at least two important differences between that dataset and the one we used. First, the firm-level emission data in the Annual Statistic Report were mostly self-reported by the firms, while the emission data in our dataset were collected by well-trained field staff who could also borrow manpower from local government agencies. As a result, the data quality of the Annual Statistic Report is likely to be lower. He, Wang and Zhang (2019) seemed to be concerned with the quality of their dataset as well, for which they wrote in their paper that "Unlike the ASIF, however, we are less confident about the quality of ESR data." Second, while the treatment equipment data in our dataset plays a key role in our analysis, the Annual Statistic Report does not provide any information on the treatment equipment used by firms.

2. We have taken Referee 1's advice, removed some footnotes and put some into the main text. We have also removed italics from more than a dozen of words.

   Specifically, the following footnotes from our previous draft are removed: 2, 3, 4, 7, 19, 23, 28, and 41. The following footnotes are integrated into the main text: 10, 12, 22, 25, 36, 39, 44, and 49. We have also merged Footnotes 16 and 17. As a result, the total number of footnotes has been reduced from 52 to 35.

3. In our accounting exercise in Section I.C., we do take the U.S. as a benchmark, since we have data on the U.S. firm size distribution. In our quantitative analysis, however, we are not able to do that, simply because we do not have access to the U.S. firm-level data. Instead, we remove all the correlated distortions from our benchmark model. We did include some discussion on the economic interpretation of the measured wedges that we call distortions in Part *Correlated Distortions* of Section II.A, with Appendix D.1 providing further details. We

choose to call these measured wedges as distortions because we prefer to stay close to the literature. In that section, we have cited two survey articles by Restuccia and Rogerson (2013, 2017) that elaborate this interpretation issue that the referee concerns. That said, we believe that it is of interest to carry out an additional exercise where the U.S. is the benchmark, if the U.S. firm-level data are available, and we leave this interesting exercise to future work.

REFERENCE

He, Guojun, Shaoda Wang, and Bing Zhang. 2019. "Leveraging Political Incentives for Environmental Regulation: Evidence from Chinese Manufacturing Firms." *Manuscript*. 1

Restuccia, Diego, and Richard Rogerson. 2013. "Misallocation and Productivity." *Review of Economic Dynamics*, 16(1): 1–10. 2

Restuccia, Diego, and Richard Rogerson. 2017. "The Causes and Costs of Misallocation." *Journal of Economic Perspectives*, 31(3): 151–174. 2