

# Air Pollution and Migration: Exploiting a Natural Experiment from the Czech Republic\*

Štěpán Mikula<sup>†a</sup> and Mariola Pytliková<sup>‡b,c</sup>

<sup>a</sup>Masaryk University (MUNI)<sup>§</sup>

<sup>b</sup>CERGE-EI<sup>¶</sup>

<sup>c</sup>IZA, VŠBTUO, CReAM and CELSI

This paper examines the causal effects of air pollution on migration by exploiting a natural experiment in which desulfurization technologies were rapidly implemented in coal-burning power plants in the Czech Republic in the 1990s. These technologies substantially decreased air pollution levels without *per se* affecting economic activity. The results based on a difference-in-differences estimator imply that improvements in air quality reduced emigration from previously heavily polluted municipalities by 24%. We find that the effect of air pollution on emigration tended to be larger in municipalities with weaker social capital and fewer man-made amenities. Thus, our results imply that strengthening social capital and investing in better facilities and public services could partially mitigate depopulation responses to air pollution. Finally, we look at heterogeneous migratory responses to air pollution by education and age and find some evidence that the more educated tend to be more sensitive to air pollution in their settlement behavior.

**Keywords:** Air pollution, migration, natural experiment

**JEL Codes:** Q53, J61, O15

\*We would like to thank Peter Huber, Štěpán Jurajda, Christian Oschner, Paolo Zacchia, participants of the IZA Workshop on Environment and Labor Markets 2019, the 2nd CReAM/RWI Workshop on the Economics of Migration in Essen, YEM2019, SEAM2019, EEA2020, EALE2020, SMYE2021, CERGE/IAB Workshop on the Future of Labor Markets, 11th IOS/APB/EACES Summer Academy on Socioeconomic Consequences of Climate Change, Disasters, and Extreme Events and seminar participants in Padova University and University of Stavanger for their comments and suggestions. This research was funded in part by the Czech Science Foundation grant on “International migration: Drivers and Impacts” (GA20-31615S). The usual disclaimer applies.

<sup>†</sup>Corresponding author, [stepan.mikula@econ.muni.cz](mailto:stepan.mikula@econ.muni.cz)

<sup>‡</sup>[mariola.pytlikova@cerge-ei.cz](mailto:mariola.pytlikova@cerge-ei.cz)

<sup>§</sup>Masaryk University, Lipová 507/41a 602 00 Brno, Czech Republic.

<sup>¶</sup>CERGE-EI, a joint workplace of Center for Economic Research and Graduate Education, Charles University and the Economics Institute of the Czech Academy of Sciences, Politických vězňů 7, P.O. Box 882, 111 21 Prague 1, Czech Republic.