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Distributional Effect of Exposure to CAFOs: A Case Study of Large Dairies in New Mexico

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The industrialization of the agricultural sector has turned into a double-edged sword for the future of humanity on this planet. On the one hand, without industrialized agriculture, there would be insufficient food and fiber to feed the growing human population. On the other hand, the rapid expansion of large-scale farms has resulted in an unprecedented amount of negative externalities impacting the environment and human health. While the benefits of abundance have been enjoyed evenly across the board, the negative impacts are borne mainly by and concentrated in the historically underprivileged communities. The goal of this research is to look at the disproportionate impact of large dairy farms on low-income and marginalized communities in New Mexico in terms of environmental, socioeconomic, and health outcomes. This study drew on data from a variety of sources. Information related to dairy farms such as geographical coordinates of the dairy and their size was obtained from the New Mexico Environment Department. Demographic data such as racial composition, ethnicity, median household income, poverty rate and high school completion rate was obtained from the American Community Survey. We also developed Indices of Concentration at the Extremes, which quantify the spatial social polarization of deprived and privileged social groups based on income and racial composition. The link between environmental inequity metrics and the presence of large dairy farms in the census tract was then shown using a correlation matrix. Preliminary results show that the proximity to a large dairy farm is explained more by the income status of the population group than their race or ethnicity. There was no discernible link between the presence of dairy farms and specific health and education indicators. A more extensive study with complete information of the confounders and causal identification is required to get a firm conclusion. This study's findings will provide valuable insights to policymakers, farmers, and the public on the negative impacts of CAFOs and will drive abatement efforts and legislation measures to safeguard public health. The findings of this study will also shed light on the perplexing topic of environmental justice and instigate policy debates to address them.