

## **ORGANIZATIONAL CHARACTERISTICS AND ENVIRONMENTAL OUTCOMES: HIERARCHICAL AND GEOGRAPHIC POSITIONS OF CORPORATE ESTABLISHMENTS IN LARGE CHEMICAL MANUFACTURING FIRMS**

Beginning in the early 1980s, environmental inequality scholars study the uneven distribution of environmental hazards across US neighborhoods, such as toxic chemicals released from industrial plants. The majority of quantitative studies in this field of research have devoted a great deal of attention to the racial and socioeconomic characteristics of neighborhoods, and thereby demonstrated the disproportionate proximity and exposure of disadvantaged social groups to environmental hazards (Mohai, Pellow, & Roberts, 2009). Despite this significant breakthrough, we cannot fully understand geographic variation in environmental hazards without taking into account larger social processes beyond the neighborhoods.

Indeed, social processes on broader geographic scales, such as business activities and governmental regulations, differentially influence local environmental outcomes from one place to another. Nevertheless, we do not know much about if and how the operations of corporations and governments influence the environmental outcomes of corporate establishments. My study thus aims to answer the following two questions: (1) How the organizational characteristics of corporate establishments are associated with their environmental outcomes? and (2) How the regulatory effects of environmental policies are different depending on the organizational attributes of manufacturing plants?

Among several organizational characteristics, I focus on *the hierarchical and geographic positions of corporate establishments in the company* in the light of two prevailing systems of large companies: organizational hierarchization and geographic diversification. Since the mid-1980s, multidivisional companies began to adopt a multilayered subsidiary form by which the ultimate headquarter companies govern the hierarchy of multitiered subsidiary firms (Boies & Prechel, 2002). Companies also geographically diversify their business operations to a greater extent with the concentration of capital into fewer firms through mergers and acquisitions (Grant, Jones, & Trautner, 2004; Logan & Molotch, 2007).

These two modal types of large corporations – i.e., organizational hierarchization and geographic diversification – are expected to have significant implications for their ecological footprint. A liability firewall between parent companies and their subsidiaries limits the responsibility of parent companies for subsidiaries' environmental misconduct (Prechel, 1997; Prechel & Zheng, 2012). Multi-locational firms tend to exploit geographic differences in environmental regulations and externalize environmental costs to host communities (Logan & Molotch, 2007; Wallace & Brady, 2009). This is because, for these geographically diversified firms, local places are replaceable commodities that are used for partial parts of production processes. Therefore, I hypothesize that *corporate establishments – which are hierarchically and geographically distant from their headquarters – are more likely to take charge of polluting production activities and, furthermore, pose serious environmental hazards.*

This article also places emphasis on different degrees of state-level environmental policies because the hierarchical and geographic restructuring of large firms is partially attributed to governments' environmental regulations. In particular, alongside direct regulatory impacts, I explore the possibility that environmental policies have differential effects on the environmental performance of industrial plants according to plants' hierarchical and geographic position in the

company. Therefore, I develop the hypothesis that *proenvironmental policies have modest regulatory effects on industrial plants that occupy lower levels in the corporate hierarchy and that have headquarters in other states.*

Using the sample of the largest 71 US-headquartered chemical manufacturing companies and their corporate establishments in the United States, I carried out statistical analyses that consist of two parts. The first part of my analysis that uses random-effects logistic regression is to analyze all corporate establishments belonging to the sample headquarter companies, regardless of their environmental impacts, and to determine which types of corporate establishments are more likely to be polluting facilities. Second, I performed a random-effects generalized least squares regression analysis to understand how the environmental performance of 1,400 polluting facilities is dependent on their organizational attributes. The datasets for this analysis come from the most recent Dun and Bradstreet's Corporate Family Tree Data, the Environmental Protection Agency's 2012 Toxic Release Inventory Program, US Census Bureau's American Community Survey, and League of Conservation Voters' National Environmental Scorecard.

Results demonstrated that corporate establishments that are hierarchically and geographically distant from their headquarter companies were more likely to take charge of industrial activities that cause pollution. This suggests that parent companies do *not* randomly assign environmentally detrimental production activities to their corporate establishments. With respect to environmental performance, higher levels of chemical hazards were generated in industrial plants that occupied lower levels in the corporate hierarchy. In contrast, the environmental performance of industrial facilities seems unrelated to their geographic position per se.

Not surprisingly, industrial plants managed their toxic chemicals more effectively when their state governments pursued strict environmental policies. Moreover, the regulatory effects of governmental policies depended on the organizational characteristics of manufacturing plants and, in particular, their geographic position in relation to their headquarter companies. Whereas environmental policies had marginal effects on facilities with distant headquarters, proenvironmental policies have significant deterrent effects on local plants' environmental performance. Consequently, non-local plants operating in strong environmental states presented greater environmental hazards than local firms because of the negligible effects of environmental policies on non-local plants.

In sum, this study suggests that organizational hierarchization and geographic diversification – which are common practices among large firms – pose increasing threats to the environment and human health. Environmental inequalities reflect underlying social inequities that are typically tied to race and class. At the same time, environmental inequalities generate other types of inequality, such as health disparities, and, consequently, reinforce preexisting racial and class differences. In this context, this study highlights the way large firms are operated as the mechanisms for shaping local environmental outcomes, and provides comprehensive explanations of the relationship between organizational characteristics and environmental outcomes.