NOT IN MY BACKYARD: INTRINSIC MOTIVATION AND CORPORATE POLLUTION ABATEMENT

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Abstract

We investigate whether managers' intrinsic incentives affect firms' environmental policies. Exploiting within-facility variation in facility-to-CEO-birthplace distances, we find that facilities located near CEOs' birthplaces experience toxic emission reductions relative to those farther away. This is achieved by reducing waste generation at source rather than by downsizing operations or substituting pollution across locations. The effect is strongest for hometown facilities in high-polluting areas, and in firms with higher cash holdings and with CEOs with weaker pay incentives. Our results suggest that local representation in management could be a powerful means of encouraging corporate pollution abatement.

Keywords: Favoritism, CEO Behavior, Pollution, Environment, Intrinsic Motivation

JEL Classification: G30, G32, G38, G41, Q53, Q54

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1 Introduction

The vast expansion of economic activity beginning with the industrial revolution has had a detrimental effect on the environment. In recent years, it is becoming increasingly clear that pollution imposes costly externalities to human health and the economy, forcing policymakers to make environmental protection a top priority. However, traditional means of internalizing the environmental externalities have proved to be imperfect. Environmental regulations as well as market-based instruments such as taxes and cap-and-trade systems have been criticized for their ineffectiveness to reduce pollution as they cause firms to reallocate resources and emissions to less regulated areas (e.g., Gibson, 2019, Ben-David et al., 2021, Bartram, Hou and Kim, 2022), and they have unintended negative consequences on the productivity and labor of local communities (e.g., Becker and Henderson, 2000; Greenstone, 2002; Walker, 2013). Furthermore, traditional stock-based executive compensation plans do not facilitate the environmental protection efforts as they incentivize managers to engage in policies that maximize firm value at the expense of the environment. A natural question is then how to improve the implementation of corporate pollution abatement policies.

Inspired by a recent finance literature showing that managers favor the areas near their hometowns or the corporate headquarters (e.g., Landier, Nair and Wulf, 2007; Cronqvist et al., 2009; Yonker, 2017) as well as a key insight from behavioral economics that "mission-oriented" organizations are more efficient when staffed by intrinsically-motivated agents (e.g., Besley and Ghatak, 2005), we propose that an additional potential way to encourage corporate pollution abatement could be to have local representation in management. That is, from the perspective of environmental protection, it may be desirable for firms to appoint managers who have a personal attachment to the areas in which the firms operate, as such managers would have intrinsic incentives to protect these areas.[1] This way, managers and, in turn, corporations internalize pollution externalities, thus better aligning their interests with those of the affected communities. Even though leveraging managers' intrinsic incentives to engage in pollution abatement may not maximize the firm's share price, this approach's positive effect on the environment may render it desirable for firms who seek to cater to a growing number of environmentally conscious stakeholders.

[1]In this paper, we refer to managers' "intrinsic" incentives in a broad sense as those arising from within, as opposed to extrinsic incentives which are provided by outside parties, e.g., by the firm employing the manager.

Yet, it is unknown whether managerial favoritism toward certain communities extends to their environmental protection and whether it results in meaningful pollution abatement activities or in wasteful substitution of production and emissions to other areas. In this paper, we aim to address these questions. Specifically, we study whether CEOs lower the toxic emissions of facilities located near their birthplaces. Furthermore, we explore the channel through which emission reduction is achieved, and we examine the interplay between intrinsic incentives to favor hometown communities and extrinsic stock-based compensation incentives to maximize firm value. We focus on the birthplaces of top managers for two reasons. First, there is an emerging literature showing that CEOs engage in policies that favor their hometown communities (e.g., Yonker, 2017; Jiang, Qian and Yonker, 2019). Second, studying managerial favoritism toward other areas such as corporate headquarters locations (e.g., Landier, Nair and Wulf, 2007) is confounded by location choices and the matching process between firms and "local" CEOs. Focusing on CEOs' birthplaces creates geographic-specific variation within firms that enables us to circumvent this problem.

To conduct our tests, we combine facility-level data from 1992–2018 on toxic emissions, employment, and sales at over 12,000 facilities at nearly 700 publicly listed companies with data on CEO birthplaces. We then test whether facilities near CEO birthplaces experience reductions in emissions relative to other facilities within firms by exploiting within-facility variation in facility-to-CEO-birthplace distance, so identification comes mainly from changes in CEO birthplaces due to CEO turnover. This identification relies on the—rather uncontroversial—assumption that CEO appointments are not systematically related to anticipated future emission changes at facilities near CEOs' birthplaces. Furthermore, it allows us to control for time-invariant facility characteristics such as the proximity of the facility to the corporate headquarters and therefore to isolate the effect of proximity to CEO birthplaces from that of proximity to corporate headquarters (and presumably CEO areas of residence). Our estimation models also include firm-by-year, facility state-by-year, and facility industry-by-year fixed effects to control for unobserved time-varying heterogeneity across firms (e.g., in size, performance, environmental policies), across locations (e.g., in economic, regulatory, or weather conditions), and industries (e.g., demand or technological change). We also control for the time-varying scale of the facility (proxied by the number of employees) as well as for the mode of production (proxied by the number of chemicals used), as these can affect the annual level of pollution at the facility.

Our main result is that facilities located near CEOs' birthplaces are more likely to experience toxic emission reductions than those farther away, which is consistent with CEOs' intrinsic motivation leading to better corporate environmental practices. In our baseline analysis, we estimate the effect of facility proximity to CEO birthplace on the annual percentage change in the pounds of toxic emissions released on-site by each facility. We find that facilities located within twenty miles of CEOs' birthplaces have 14% lower annual growth in pounds of toxic emissions than facilities located farther from CEOs' birthplaces. Given that the average annual growth rate of toxic emissions across facilities and years is about −8%, this means that the rate at which a facility's toxic emissions are reduced over time almost triples when the facility is located near the CEO's birthplace. This reduction in pollution is larger the closer the facility is to the CEO birthplace and is driven by both the intensive and extensive margins, with about half of the effect coming from each.

We then study the channel through which CEOs reduce pollution growth in facilities close to their birthplace. Do they reallocate economic activities (hence emissions) across facilities of the same firm? Do they downsize a facility's operations? Or do they improve its production processes, and therefore increase production efficiency and decrease production waste? Our evidence is most consistent with this last channel. Pollution intensity, as measured by toxic emissions per unit of scale, is 12% lower at facilities near CEO birthplaces, which is very similar to the 14% reduction in the annual growth rate of toxic emissions that we document in our baseline analysis. This indicates that the reduction in toxic emissions is almost exclusively driven by reductions in pollution intensity. Moreover there is no evidence that CEOs reduce facility scale as measured by input (employment) and output (sales) or that they shift emissions to sister facilities operating within the same industry and under the same parent firm-year as the CEO's hometown facilities. Investigating further how hometown facilities' pollution intensity is reduced, we find that it is mostly through the reduction of waste generation at the source—which is the most environmentally preferred strategy by the US Environmental Protection Agency (EPA)—rather than through other practices (e.g., recycling, energy recovery, and/or treatment) that occur after chemicals have entered a waste stream.

A natural question is whether the pollution reductions that we document are optimal. Optimality can be considered from both the firm's perspective and from a social or stakeholder perspective. To help to answer this question we next examine the factors that could moderate CEO favoritism. These include factors that are both external and internal to firms. We start by studying whether *external* factors related to the characteristics of CEO birthplaces affect the CEO's pollution reduction activities at hometown facilities. While CEOs appear to have an incentive to reduce toxic emissions—e.g., because toxic emissions lead to adverse health outcomes (Chay and Greenstone, 2003), decreased worker productivity (Graff Zivin and Neidell, 2012), and lower home prices (Chay and Greenstone, 2005)—they may also have an incentive to protect labor and encourage the economic growth of their hometown communities (see Yonker, 2017). As these incentives can be at odds, CEOs' behavior may vary as the underlying birthplace characteristics—ambient pollution and unemployment level—vary. For example, CEOs may be more (less) likely to reduce the pollution of their hometown facilities when ambient pollution level (unemployment level) is high. We find that pollution reduction is entirely concentrated in hometown facilities located in high-pollution counties, indicating again that CEOs engage in meaningful rather than in wasteful pollution reduction activities. However, we also find that local unemployment does not have a moderating effect. Thus, we conclude that CEOs' pollution reduction incentive is strongest when the demand for environmental quality is high and weakens as ambient pollution falls, but it survives even when local unemployment and the incentive for labor protection and economic development is high. Furthermore, we show that CEO incentives to reduce emissions near their hometowns are also enhanced by industry-level environmental litigation shocks measured by the annual growth rate in the aggregate value of civil penalties initiated by the EPA against polluting facilities.

Subsequently, we study how *internal* factors related to the characteristics of the parent firm affect the CEO's pollution reduction activities at hometown facilities. We hypothesize that these activities will be diminished if the CEO does not want to or cannot engage in them. Indeed, we find that pollution reduction in hometown facilities is weaker if the CEO's incentives (as measured by the sensitivity of his stock and option portfolio value to the firm's stock price) are more closely aligned with maximizing firm value, but is unaffected by the strength of corporate governance. This is an indication that the pollution favoritism that we document may not maximize the firm's share price, but this behavior may not be discouraged by the board as it is beneficial from a social or stakeholder perspective. Next, we find that pollution reduction in hometown facilities is less pronounced in firms that have less cash available to make investments. This is consistent with our finding that pollution reduction is implemented by engaging in activities that reduce emissions at the source, which require investments in abatement technologies. It is also consistent with our finding that the CEO's behavior has an agency cost which is mitigated not only by incentive alignment but also by lack of free cash. When consolidated, these results suggest that these emission reductions are beneficial for the communities in which firms operate, but may come at the expense of firm value.

We conduct a number of robustness checks to rule out issues with our empirical design and known self-reporting biases in the pollution data. One potential concern is that CEOs are deliberately selected to reduce the emissions in their hometown facilities. If that were the case, then we should see reductions in emissions at hometown facilities during the first few years of CEO tenure. We test this and find no differential "early tenure" effect of facility proximity on toxic emissions, which helps to alleviate concerns that the effect of facility proximity on toxic emissions is driven by selection instead of CEOs' intrinsic incentives. Another concern with our results is that CEOs may simply under-report the emissions of their hometown facilities so that they *appear* to be favoring their hometown community. Even though existing studies in the literature have argued that under-reporting is likely to be limited due to the EPA's compliance monitoring activities (see, e.g., Akey and Appel, 2021), we also directly examine whether our results are an artifact of a self-reporting bias in the emissions data. First, motivated by Brehm and Hamilton (1996) who argue that potential misreporting is concentrated in facilities that release a small amount of emissions, we check and confirm that our results remain the same if we only use high-emitting facilities in our analysis. Second, we use EPA enforcement and penalty data to examine whether facilities near their CEO's birthplace incur more actions and penalties for pollution violations, which would likely be the case if CEOs intentionally under-reported these facilities' emissions. Reassuringly, we find that this is not the case.

Our findings contribute to several strands of the literature. First, our paper is related to studies showing that CEOs favor certain geographic areas. Landier, Nair and Wulf (2007) show that firms are less likely to lay off workers located near the corporate headquarters, and Yonker (2017) finds similar evidence for workers located near CEOs' birthplaces following periods of industry distress. Jiang, Qian and Yonker (2019) and Chung, Green and Schmidt (2018) show that CEOs are more likely to acquire firms located in their home states. Lim and Nguyen (2021) show that banks grant more mortgages and open more branches near their CEOs' birthplaces.[2] We contribute to

[2]Masulis and Reza (2015) provide evidence for another form of favoritism whereby CEOs are more likely to donate

this literature by studying whether CEOs' preferential treatment of their birthplace communities extends to their environmental protection. This question becomes even more interesting in view of the aforementioned studies which show that CEOs care about the economic development of their birthplaces, an objective that often contradicts that of environmental protection.

In a contemporaneous study, Li, Xu and Zhu (2022) investigate a similar research question, using a smaller sample of firms and an alternative identification strategy. Like our study, they conclude that CEOs show favoritism towards facilities in their hometowns regarding environmental outcomes. Specifically, both studies link differences in facility-level pollution within firms to differences in facility proximity to CEO birthplaces. However, aside from Table 5, the analysis by Li, Xu and Zhu (2022) uses a weaker identification strategy that does not rely on changes in facility proximity to CEO birthplaces after CEO turnover and thus cannot fully rule out alternative explanations. For example, their approach does not control for the possibility that CEOs may be born in regions where facilities naturally have lower emissions or benefit from stricter environmental regulations, such as large metropolitan areas. This limitation complicates the interpretation of their results beyond identifying favoritism, particularly when exploring mechanisms. In contrast, our model incorporates facility-level fixed effects throughout the analysis, mitigating this concern. This methodological distinction may explain why our estimated baseline effect sizes are significantly smaller (14% compared to their 30%) and why our conclusions differ on the mechanisms driving the reduction in hometown pollution and other related dimensions. While Li, Xu and Zhu (2022) attribute pollution reductions to increased recycling and recovery efforts, our findings suggest that pollution is primarily mitigated at its source. If CEOs are driven by a desire to create a cleaner environment for family and friends in their hometowns, targeting pollution directly at its source offers a more immediate and impactful approach.[3]

to charities they are personally affiliated with. More broadly, a large literature shows that individual and professional investors tilt their portfolios toward firms headquartered near where they live (e.g., Coval and Moskowitz, 1999; Coval and Moskowitz, 2001; Ivkovic and Weisbenner, 2005; Seasholes and Zhu, 2010), where they grew up (e.g., Pool, Stoffman and Yonker, 2012), or toward firms with which they are connected (e.g., Cohen, Frazzini and Malloy, 2008).

[3]Additionally, unlike Li, Xu and Zhu (2022), we find mixed evidence regarding the influence of corporate governance on CEO behavior. This suggests that the observed environmental favoritism may not solely reflect a costly agency problem but may also entail benefits that serve broader stakeholder interests. We support this hypothesis by demonstrating that CEOs' pollution-abatement efforts are directed toward areas where pollution reduction is genuinely needed, without causing inefficient pollution substitution across facilities. Beyond the core findings, the two studies also diverge in the additional questions they explore. Our research focuses on the balance between economic activity and environmental policy, showing that firms do not sacrifice employment in hometown facilities to reduce pollution

Second, our paper is related to papers that study the determinants of corporate environmental behavior. Ben-David et al. (2021) show that firms headquartered in countries with strict environmental policies perform their polluting activities abroad. Bartram, Hou and Kim (2022) find that the 2013 California cap-and-trade rule led financially constrained firms to shift emissions from California to other states. Akey and Appel (2021) show that stronger parent liability protection for subsidiary environmental cleanup costs leads to higher toxic emissions by the subsidiaries. Xu and Kim (2022) show that more financially-constrained firms release higher toxic emissions, and Cohn and Deryugina (2018) find an increase in environmental spills following negative shocks to firms' financial resources. Shive and Forster (2020) find that independent private firms are less likely to pollute and incur EPA penalties than public firms. More broadly, our paper is related to the large literature on corporate social responsibility (CSR), specifically the management literature on the stakeholder theory of CSR (see Freeman, 2010) as well as several finance studies that examine the determinants of CSR investment (e.g., Di Giuli and Kostovetsky, 2014; Ferrell, Liang and Renneboog, 2016; Cronqvist and Yu, 2017; Dyck et al., 2019) and how CSR affects firm performance (e.g., Margolis, Elfenbein and Walsh, 2009; Krüger, 2015).[4] We contribute to this literature by showing that another important determinant of corporate environmental behavior is rooted in the CEO's desire to protect his hometown community.

Our findings also build on recent work in the agency literature, which has expanded to examine conflicts among multiple stakeholders and the different types of "perks" managers seek. This body of research shows that managers often favor certain employees for personal gain, sometimes at the expense of shareholders (e.g., Landier, Nair and Wulf, 2007; Cronqvist et al., 2009; Yonker, 2017), that private jet use by CEOs may not align with shareholder interests (e.g., Yermack, 2006, 2014; Edgerton, 2012), and that managers may increase the value of their private assets through corporate investments (e.g., Décaire and Sosyura, 2022). Additionally, there is ongoing debate over whether charitable contributions or socially responsible investments enhance shareholder value (Masulis and Reza, 2015; Cheng, Hong and Shue, 2023; Ferrell, Liang and Renneboog, 2016). We contribute to this literature by providing suggestive evidence that CEOs use pollution allocation as a form of "perk," benefiting their

but instead improve environmental efficiency. In contrast, Li, Xu and Zhu (2022) offer suggestive evidence of broader pollution and health implications by correlating the share of hometown facilities in counties with county-level pollution and health outcomes, implying that the local effects we document could have larger aggregate consequences.

[4]Also see Kitzmueller and Shimshack (2012) for a comprehensive review of the CSR literature.

hometown communities more frequently when incentive pay is low and cash reserves are abundant.

Finally, our paper is also related to papers that study the effect of managerial characteristics such as early-life and career experiences on corporate decisions. For example, Malmendier, Tate and Yan (2011) show that CEO overconfidence and early-life experiences significantly affect firms' financial policies. Bernile, Bhagwat and Rau (2017) show that CEOs who experienced natural disasters in their early life without extremely negative consequences take riskier corporate decisions today. Benmelech and Frydman (2015) show that CEOs that have served in the military pursue more conservative investment and financial policies. Dittmar and Duchin (2015) show that CEOs who have experienced distress in their employment history have less debt, save more cash, and invest less. Schoar and Zuo (2017) show that managers who began their careers during recessions have more conservative managerial styles. We add to this literature by showing that CEOs' connection to their birthplaces is reflected in corporate environmental policies.

The rest of the paper is organized as follows. In Section 2, we discuss our data sources. In Section 3, we present our model. In Section 4, we present our main results on the effect of CEO birthplace proximity on facility emissions. In Section 5, we study the channel through which CEOs reduce the pollution of their birthplace facilities. In Section 6, we present results on how favoritism varies with county, industry, and parent-firm characteristics. In Section 7, we conclude.

2 Data

2.1 Facility-level Data

Facility-level pollution data are from the Toxics Release Inventory (TRI) administered by the U.S. Environmental Protection Agency (EPA). The TRI program was established by Section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA) to provide the public with information about facility-level releases of toxic chemicals that may pose a threat to human health and/or the environment. Any U.S. facility that operates in a TRI-listed industry sector (covering mostly manufacturing, metal mining, electric power generation, and hazardous waste treatment) is required to report its annual emissions to the TRI if it has at least ten full-time employees and "manufactures, processes or otherwise uses" a TRI-listed toxic chemical above specified threshold levels during the reporting year.[5] To assess the impact of these emissions on human health, we merge the TRI data with information about the toxicity of each reported chemical obtained from the EPA's Integrated Risk Information System (IRIS) database. This database provides information on potential human health effects from long-term exposure to over 560 chemicals grouped by the primary human organ system they affect (e.g., respiratory, nervous or developmental). We then aggregate emissions across chemicals and we calculate for each facility-year the amount (in million pounds) of emissions released in the air, water, and ground, as well as the amount of emissions that are particularly hazardous to human health. Furthermore, we use the facility-level hazard scores reported by the EPA's Risk-Screening Environmental Indicators (RSEI) which are calculated by multiplying the pounds of released chemicals per year by each chemical's toxicity weight for the exposure route (oral or inhalation) associated with the release.

TRI emissions data are self-reported, but the EPA has instituted a TRI Data Quality Program that undertakes several activities every year to ensure that the data are of the highest possible quality. These activities include providing extensive guidance to reporting facilities so that they collect and submit accurate data, as well as conducting data validation checks and analyses after the data are received. Furthermore, the EPA conducts facility inspections to detect non-reporting violations or potential errors in filed forms, and may issue civil or criminal penalties (e.g., monetary fines or even incarceration) as well as require the submission of revised forms.[6] To examine whether a potential self-reporting bias may have affected our analysis, we obtain information about EPA enforcement cases trough the Integrated Compliance Information System (ICIS) data set for federal civil enforcement cases. This data set contains detailed information on federal administrative and judicial cases under nine environmental statutes, including violations of TRI reporting under Section 313 of the EPCRA.

[5]See https://www.epa.gov/toxics-release-inventory-tri-program/tri-covered-industry-sectors for the current list of over 400 industry sectors (defined at the 6-digit NAICS level) that are subject to TRI reporting, and https://www.epa.gov/toxics-release-inventory-tri-program/tri-listed-chemicals for the current list of over 650 TRI-reportable chemicals. For most chemicals, disclosure is triggered if the facility "manufactures" or "processes" above 25,000 lbs per year or "otherwise uses" above 10,000 lbs per year, though some chemicals have much lower thresholds. We note that the reporting criteria have changed over the life of the program; these changes are unlikely to affect our analysis, as it is unlikely that they are systematically related to changes in facility proximity to CEO birthplaces.

[6]Importantly, the EPA imposes penalties only for misreporting and not for high levels of emissions, which should reduce firms' incentives to under-report their emissions. See https://www.epa.gov/toxics-release-inventory-tri-program/tri-data-quality for more information on the TRI Data Quality Program as well as the EPA's Compliance and Enforcement actions.

In addition to the emissions data, TRI reports contain basic historical information about each facility, such as its location (street address and latitude/longitude), industry classification, parent company, and a production (or activity) ratio that measures changes in the facility's output or outcome of processes from the previous year.[7]

We use two more data sources to obtain facility-level information on the number of employees and the U.S. dollar value of sales. First, we use the National Establishment Time Series (NETS) database constructed by Walls & Associates using annual snapshots from Dun and Bradstreet's (D&B) archival data. For the period 1992–2013, we obtain from this database annual historical information about the number of employees and the U.S. dollar value of sales, and the location (street address and latitude/longitude) for all U.S. business establishments ever part of a publicly listed company. NETS provides one of the most comprehensive records of establishment activity and its data appears to be in line with that from official data sources from the U.S. Census Bureau and the U.S. Bureau of Labor Statistics (Barnatchez, Crane and Decker, 2017).[8] Second, we use the Your-economy Time Series (YTS) database constructed by the University of Wisconsin's Business Dynamics Research Consortium using the Data Axle (formerly Infogroup) Business Historical databases. For the period 1997–2018, we obtain from this database annual historical information about the number of employees and the U.S. dollar value of sales, and the location (latitude/longitude) of all U.S. facilities. The YTS data is also very high quality: Kunkle (2018) compares it with employment data from the U.S. Bureau of Labor Statistics and finds that the YTS data are more comprehensive and demonstrate more frequent annual changes in employment which correlate better with changes in economic conditions. As controlling for the scale of the facility—using number of employees or

[7]A facility's parent company is defined as the highest-level corporation or other business entity that controls the reporting facility in the reporting year. Reported production/activity ratios are chemical-specific. For example, if a chemical is used to produce refrigerators (to clean molds), the production (activity) ratio for year t is given by the number of refrigerators produced (number of molds cleaned) in year t divided by the corresponding number in year $t-1$. We aggregate this ratio at the facility-level by computing a weighted average of the chemical-specific production ratios where the weights are the contribution of each chemical to the quantity of all chemicals produced as waste by the facility each year.

[8]Some discrepancies between NETS and official data sets have been observed for small establishments, possibly because their figures are not directly reported by the establishments but rather imputed by D&B based on statistical models. Most of these establishments are not required to report to the TRI so they are excluded from our final sample. Furthermore, repeating our main analysis using a subsample of NETS establishments for which we observe actual (rather than imputed) values does not affect our results.

value of sales—is important for our analysis, using both the NETS and the YTS data enables us to use the highest quality of such data available, to obtain the highest coverage possible, and to check the robustness of our results using alternative sources of this data. We merge the NETS and YTS data set with the EPA's TRI database via a name- and address-matching algorithm; for more details, see the Internet Appendix.[9] Overall, we have information from either NETS or YTS for about 70% of the observations in TRI for the period 1992–2018. We combine the employees and sales values from NETS and YTS to construct two sets of measures for each facility: one that uses the source (NETS or YTS) with the higher-quality address/name match with TRI and one that averages the values from both sources. The results from our analysis below are very similar across the two measures.

Finally, we collect data about the characteristics of the counties where facilities are located, namely (i) county-level annual unemployment statistics from the U.S. Bureau of Labor Statistics, and (ii) information about whether a county is designated as an "attainment" county by the EPA, i.e., the county's ambient concentration of the criteria pollutants meets the EPA's National Ambient Air Quality Standards in a given year.[10]

2.2 Firm-level Data

We obtain information about the parent companies from Execucomp, Compustat, and the WRDS SEC Analytics Suite. Specifically, we construct a firm-level data set by combing (i) information about the CEOs of firms in the S&P1500 from Execucomp (available starting in 1992), (ii) accounting information from Compustat, and (iii) historical company names and addresses (as reported in SEC filings) from the WRDS SEC Analytics Suite. We combine firm-level with facility-level information (from TRI, NETS, and YTS) by standardizing and matching the historical company names in the two

[9]It is important to note that, while both TRI and NETS have a common identifier—DUNS numbers—that could in principle be used for matching observations, doing so is problematic because in any given reporting year multiple facilities report the same DUNS number. Facilities with the same DUNS number usually belong to the same parent firm but are often in completely different locations. Keeping only observations in which DUNS is associated with a unique facility-year would eliminate a large fraction of facility-year observations and probably yield an unrepresentative sample. See Khanna (2019) for a discussion of this issue.

[10]See https://www.bls.gov/lau/#tables for the unemployment data and https://www.epa.gov/green-book/green-book-data-download for the attainment data.

data sets.[11] We match about 43% of the firms in the Execucomp database with the parent firms in TRI; we confirm that our name-matching algorithm works well as the vast majority of the unmatched Execucomp firms operate in industries that are not required to report their emissions to the TRI.

Finally, we match the resulting data set with information about CEO birth dates and places (at the town/city level). This data set uses the Bernile, Bhagwat and Rau (2017) data as a starting point and is augmented by our own web searches. In total, we have birth information for 980 out of the 3,153 CEOs of the parent firms that have reported to the TRI from 1992 to 2018 (a 31% match rate).[12]

In Table 1, we present detailed definitions and data sources for all the variables in our dataset.

2.3 Summary Statistics

Our final sample contains 104,067 facility-years that appear in the TRI data and for which we know (i) the birthplace of the parent firm's CEO and (ii) the facility employment level from NETS/YTS. These correspond to a total of 12,268 facilities, 667 parent companies and 957 CEOs, for the period 1992–2018. On average, we have 3,854 facilities and 230 parent firms per year over the 27-year period. Our main variable of interest is based on the geodetic distance between the TRI facility location and the birth city/town of the parent firm's CEO.

Tables 2 and 3 provide summary statistics for the characteristics of the facilities (separately for all facilities and for hometown facilities) and their parent firms in our final sample. The most common facility industries (by three-digit NAICS code) are chemical manufacturing (17.13% of all facility-years), food manufacturing (10.52%), and fabricated metal product manufacturing (10.05%), while the highest-emitting industries are utilities (24.73% of total emissions), chemical manufacturing (21.80%), and mining (15.45%); see the Internet Appendix for detailed statistics about the facility industries in our sample and the distribution of total emissions across industries. The average facility employs 365 individuals and generates sales of 71 million dollars. The average

[11] We note that (i) in TRI we have calendar year emissions, but (ii) in Execucomp we have fiscal year data and (iii) in NETS and YTS we have snapshots of data collected each summer. These have been aligned for merging purposes, i.e., the observation for year t contains (i) TRI emissions for calendar year t, (ii) Execucomp data from the fiscal year mostly overlapping with calendar year t, and (iii) NETS and YTS data collected in the summer of year t.

[12] Our match rate is similar to that in Bernile, Bhagwat and Rau (2017), who have CEO birth information for 2,102 out of the 6,804 CEOs in the Execucomp database for the period 1992–2012.

facility produces as waste 1.15 million pounds of toxic emissions on-site, out of which 0.21 million pounds are released to the air, water and ground, and the remaining is managed, i.e., recycled, used for energy recovery, or treated. 48% of all reported emissions are released to the air, and 46% of all reported emissions are considered to be particularly harmful to humans. Total emissions are reduced over time (partly due to new legislation) at an average rate of about 8% per year.[13] Misreporting of emissions seems to be relatively low, with an average of 0.3 violations across all environmental statutes for every 100 facility-years. The mean characteristics of hometown facilities are similar to those of all facilities, except that the former are larger with 489 employees and 79 million U.S. dollars in sales (these differences in scale are statistically significant).

On average, across firm-years, facilities are located 792 miles away from the parent-firm CEO's birthplace, with 1.8% (7%) of facilities located within 20 (100) miles of the CEO's birthplace. On average, across firms, facilities located within 20 miles of CEOs' birthplaces account for about 4% of the entire firm's total emissions reported to the TRI. Figure 1 displays the geographical distribution of TRI facilities in our sample, together with the locations of the CEO birthplaces, pooled across firms and years. The map reveals considerable heterogeneity in the locations of both TRI facilities and CEO birthplaces, with a higher concentration of both (as expected) in or near urban areas.

3 Model

We begin our analysis by studying the effect of CEO birthplace proximity on facility toxic emissions. Throughout our analysis, we exploit within-facility variation in facility-to-CEO-birthplace distance, so identification comes from CEO turnover. If CEOs favor their birthplace communities, we expect that, upon a CEO turnover event, facilities located near the birthplace of the incoming CEO will experience pollution reduction and/or facilities located near the birthplace of the outgoing CEO will experience pollution increase. This identification relies on the—rather uncontroversial—assumption that the appointment of a parent-company CEO with birthplace near a specific facility is not

[13]This includes both the extensive margin (firms that stop reporting to the TRI) as well as the intensive margin (firms that report lower emissions than before); focusing on the latter only, total emissions are reduced at a rate of about 7% per year. This means that for the average facility, which we observe for about 8 years in our sample, its pollution eventually drops to about half its initial value.

systematically related to anticipated future changes in this facility's emission levels. In our sample, we observe 201 CEO turnover events at the firm-level, which are associated with 7,378 facility-to-CEO-birthplace distance changes. Specifically, 171 facilities (2,000 facility-years) experience CEO turnover where the birthplace of the incoming or the outgoing CEO is within 20 miles of the facility, while 667 facilities (7,505 facility-years) experience CEO turnover where the birthplace of the incoming or the outgoing CEO is within 100 miles of the facility.

We estimate various forms of the model

$$\%\Delta Y_{i,j,t} = \alpha_i + \alpha_{j,t} + \alpha_{s,t} + \alpha_{k,t} + \beta \cdot HometownFacility_{i,j,t-1} + X'_{i,t-1}\gamma + \varepsilon_{i,j,t}, \tag{1}$$

where the dependent variable is the percentage change from year $t-1$ to year t in the variable of interest Y for facility i owned by firm j, which is defined as in Greenstone (2003) as

$$\%\Delta Y_{i,j,t} = \frac{Y_{i,j,t} - Y_{i,j,t-1}}{\left(Y_{i,j,t} + Y_{i,j,t-1}\right)/2}. \tag{2}$$

This measure of percentage change ranges from -2 to $+2$ and captures expansion and contraction symmetrically.[14] Importantly, it enables us to include in the sample observations on "entries" and "exits", i.e., facilities that report emissions in t but not $t-1$ and those that report emissions in $t-1$ but not t, respectively. To study the extensive and intensive margins of pollution separately, we also estimate specifications where the dependent variable is defined only for non-zero emissions (i.e., it excludes entries and exits) as well as an indicator variable equal to 1 when a facility stops or starts reporting emissions to the TRI and equal to 0 otherwise.

The parameter of interest is β, the coefficient on our measure that indicates that the facility is close to the CEO birthplace. Specifically, $HometownFacility_{i,j,t-1}$ indicates that, in year $t-1$, the location of facility i is close to the birth town of the CEO of its parent firm j. Since the impact of toxic emissions on human health and housing prices has been found to be highly localized (Currie et al., 2015), in our baseline analysis, we set the proximity cutoff to be 20 miles, but we also estimate specifications where we replace it with different values, e.g., 50 miles or 100 miles, as well as specifications that use a continuous distance measure between the facility's location and the CEO's birthplace instead of a proximity indicator variable.

[14] This measure of percentage change is a second-order approximation to the change in logs, i.e., $\log\left(Y_{i,j,t}\right) - \log\left(Y_{i,j,t-1}\right)$. Using the change in logs as the dependent variable in our analyses yields very similar results.

Our model includes facility-level fixed effects (α_i), which control for unobserved fixed heterogeneity across facilities. The facility-level fixed effects also control for the proximity of each facility to the headquarters of its parent firm, which are presumably near the CEO's residence. This allows us to isolate the effect of proximity to CEO hometowns from that of proximity to corporate headquarters or CEO residence areas.[15] We also control for time-varying facility characteristics by including a vector of facility-level controls measured in year $t-1$ ($X_{i,t-1}$). Specifically, it is important to control for the scale of the facility as well as for the mode of production, as these can affect the annual level of pollution at the facility; we proxy for scale using the number of employees or dollar value of sales, and for the mode of production using the number of chemicals used at the facility.

Our model also includes firm-by-year ($\alpha_{j,t}$), facility state-by-year ($\alpha_{s,t}$), and facility industry-by-year ($\alpha_{k,t}$) fixed effects. The firm-by-year fixed effects control for time-varying firm-level heterogeneity that may cause firm-level patterns in pollution and pollution production, including selection of a particular CEO based on their views on environmental stewardship. Facility state-by-year fixed effects control for unobserved variation in economic/regulatory conditions across states and over time. For example, a 1998 Supreme Court decision that strengthened firms' limited liability protection for subsidiaries located in certain states has caused firms to increase their emissions in these states (see Akey and Appel, 2021). Finally, facility industry-by-year fixed effects (with industry classification defined using the primary 3-digit NAICS code for each facility) control for unobserved time-varying heterogeneity at the industry level. Standard errors are heteroskedasticity-consistent and clustered by parent firm.

4 Results

4.1 Baseline Analysis

We start our analysis by evaluating the effect of CEO birthplace proximity on facility emissions along both the intensive and the extensive margin. We estimate Equation 1 using as dependent variable the annual percentage change in the pounds of toxic emissions released on-site by each facility (see

[15]In a small number of cases, facilities/headquarters relocate and so the distance between the facility and the parent-firm headquarters is not always a fixed facility characteristic. To account for such cases, we can explicitly control for the distance to headquarters. Doing so does not change any of our results below.

Equation 2). As already discussed, this measure captures both the intensive and the extensive margins simultaneously. If managers care about the environmental protection of their hometown communities, then the estimated coefficient on the hometown facility dummy ($HometownFacility_{i,j,t-1}$) should be negative, indicating that facilities located close to CEOs' birthplaces experience lower emission growth (i.e., lower emission increases or even emission reductions). In our baseline analysis, we define as hometown facilities those within 20 miles of the CEO's birthplace; in Section 4.2 below we motivate this choice by examining how the estimated effect changes with the distance between the facility and the CEO birthplace.

In Table 4, we report our baseline results with different sets of fixed effects and controls. In panel A, we present the effect of facility proximity on total (i.e., air, water, and ground) emissions, and in panel B, we present results for air emissions, which are most likely to result in actual human exposure and are released by the majority of TRI facilities.[16] Across all specifications, we find that facilities located near CEOs' birthplaces are more likely to experience lower emission growth (i.e., emission reductions and/or lower emission increases) than facilities located farther from CEOs' birthplaces. The estimated coefficients on facility-to-CEO-birthplace proximity are economically large and statistically significant. Specifically, the estimate of β (about -0.14 in our richest specification in column 4, with a t-statistic of 2.8) suggests that facilities located close to the CEO's birthplace have a 14% lower annual growth in pounds of toxic emissions. Given that the average annual growth rate of toxic emissions across facilities and years is about -8%, this means that the rate at which a facility's toxic emissions are reduced over time almost triples when the CEO's birthplace is close to the facility. In column 5, we add an interaction term to study whether the hometown effect is stronger for facilities located near to or far from the corporate headquarters (and presumably the CEO's residence). The coefficient on the hometown facility dummy captures the hometown effect for facilities near the headquarters (HQ facilities), and the coefficient on the interaction term captures the differential hometown effect for facilities far from the headquarters (non-HQ facilities). We find that the hometown effect is weaker, but not statistically different, for the non-HQ than for the HQ facilities.

In Table 5, we estimate the effect of facility proximity to CEO birthplaces on emission reductions of varying magnitudes. In each column, the dependent variable is an indicator variable that takes

[16]Positive ground (water) emissions are reported in only 8.7% (17%) of the facility-years in our sample.

a value of one if emissions growth is below the indicated threshold. For all emission thresholds, we find that β is positive, indicating that facilities near CEO birthplaces are more likely to experience pollution reduction, but becomes statistically significant when emissions growth is lower than -10% indicating that the effect is driven by relatively large pollution reductions.

4.2 Distance Effects

Empirical studies suggest that the negative externalities of pollution are highly localized. For example, Currie et al. (2015) find that toxic air emissions affect ambient air quality and thereby infant health and housing values only within 1 mile from the TRI facility. If the costs associated with a facility's toxic emissions dissipate as we move farther away from the facility, we expect that favoritism may also become weaker (or undetectable) as the distance between the facility and the CEO birthplace increases. To test this, we estimate Equation 1 using multiple specifications for facility-to-CEO-birthplace distance, and we present the results in Table 6. In column 1, we use a dummy variable indicating facilities located within 100 miles of the CEO birthplace, and we find that the effect of CEO proximity on total toxic emissions is negative but insignificant. In column 2, we include both the 100 mile indicator variable and its interaction with the natural logarithm of the facility-to-CEO-birthplace distance. The coefficient on the indicator variable captures the effect for facilities located in the geographic center of the CEO's birthplace, and the coefficient on the interaction term captures the effect of distance within the 100 mile zone. The coefficient on the indicator is estimated significantly negative suggesting that facilities located at the CEO's birthplace experience the largest decrease in emission growth, while the coefficient on the interaction term is estimated significantly positive suggesting that, as expected, the effect dissipates as the distance between the facility and the CEO birthplace increases. Specifically, our estimates in column 2 imply that facilities located at the CEO's birthplace experience a 23% lower emission growth than other facilities of the same firm, while facilities located 10 (20) miles away experience a 10% (6%) emissions reduction. These findings are consistent with Currie et al. (2015) who show that the effect of toxic emissions dissipates exponentially with distance from the facility. In column 3 (4), we partition the mass of facilities within the 100-mile radius from the CEO birthplace into two (four) equal parts based on distance, and we define indicator variables for facilities located within each of these distance bins.[17] Similar to our previous results, we find that the effect is strongest for the facilities located in the lowest distance quartile, i.e., within 18 miles of the CEO birthplace. Finally, in Figure 2, we plot the coefficient estimates and 95% confidence intervals on the facility-to-CEO-birthplace proximity indicator variable in successive estimations of Equation 1, each time raising the proximity cutoff from 20 miles to 100 miles, in 10-mile increments. We present results separately for air emissions (in panel *a*) and total emissions (in panel *b*). As above, we see that the effect is strongest for facilities located in the CEO's close neighborhood and fades and becomes statistically insignificant as the distance boundary increases beyond the 50-mile cutoff. To be able to detect a potentially highly localized effect without sacrificing statistical power, in our analyses below, we define CEO proximity as within 20 miles of the facility.

4.3 Intensive and Extensive Margin

In Table 7, we examine whether the effect we estimate in our baseline specification is driven by the intensive or extensive margin of pollution. To study the effect of facility proximity on the *intensive* margin of emissions, we re-estimate the model in Equation 1 using as dependent variable the percentage annual change in pounds of toxic emissions, but values indicating that a facility either starts or stops reporting toxic emissions to the TRI are set to missing hence the corresponding observations are omitted from the estimation. In column 1 of the table, we see that the estimated coefficient on facility proximity is -0.08 for total emissions (-0.10 for air emissions), indicating that facilities located close to the CEO's birthplace have an 8% (10%) lower annual growth in pounds of total (air) toxic emissions, which is a little more than half the total (intensive plus extensive margin) effect estimated previously. To study the effect of facility proximity on the *extensive* margin of emissions, we estimate three variations of the model in Equation 1. In the first variation, we focus on facility emission stops and starts, so the dependent variable equals -1 (+1) for years the facility stops (starts) reporting toxic emissions to the TRI and 0 in all other years. To separately identify the effects of emission stops and starts, in the second (third) variation, we replace the dependent variable by an indicator that equals 1 if the facility stops (starts) reporting toxic emissions to the TRI and 0 in

[17] The distance cutoffs are 18 miles (25th percentile), 39 miles (50th percentile), and 72 miles (75th percentile).

all other years. The results from these analyses are reported in columns 2–4 of the table, respectively, and they show that most of the effect of facility proximity on the extensive margin on facility pollution is through an increase in the probability that the facility stops reporting toxic emissions. Specifically, facilities located close to the CEO's birthplace have 2% (3%) higher chance, every year, to stop reporting toxic total (air) emissions. Overall, our findings indicate that facility-to-CEO-birthplace proximity affects both the intensive and extensive margins of facility emissions.

In Table IA.C1 of the Internet Appendix, we also study the effect of CEO birthplace proximity on the operating status of a facility determined using data from the NETS and YTS databases.[18] Across all specifications, we find that CEO birthplace proximity has no effect on whether a facility is operating in a given year. This suggests that the results documented in our baseline analysis capture the overall effect of CEO favoritism on emission changes near their birthplaces and are not affected by differential survivorship bias due to CEOs being less (more) likely to close down (open) a working facility near their birthplace. Furthermore, in Table IA.C2 of the Internet Appendix, we confirm that our results remain unchanged if our baseline analysis is conducted at the firm-city level instead of the facility level. This provides further evidence that the intrinsic motivation of CEOs can have substantial effects on the pollution levels of local communities.

4.4 Effect on Human Health Risk

Even though all chemicals reported to the TRI are toxic, they do not all have the same adverse effects on human health. In this section, we examine the effect of CEO birthplace proximity on alternative measures of facility emissions that reflect more accurately their health risks by taking into account not only the amount (pounds) of emitted chemicals but also their relative toxicity. If CEOs favor their birthplace communities, we expect that they will have a stronger incentive to limit toxic emissions that are likely to be most harmful for human health.

In Table 8, we present results from estimating Equation 1 using alternative measures of harmful facility emissions. Specifically, in column 1, the dependent variable is the percentage annual change in total pounds of released chemicals that have been classified by the EPA's Integrated

[18]The TRI database is poorly suited for studying any effects on facility operating status as facilities start reporting their emissions to the TRI only if they exceed certain thresholds on employment and chemical usage.

Risk Information System (IRIS) as particularly harmful for human health. In columns 2–7, the dependent variable is the percentage annual change in total pounds of released chemicals that have been classified by IRIS as harmful to the nervous, respiratory, urinary, developmental, hematologic, and hepatic system, respectively. In column 8, the dependent variable is the percentage annual change in toxicity-weighted pounds (RSEI Hazard) of the released chemicals.

We find that the effect of facility-to-CEO-birthplace proximity on harmful emissions is economically large and statistically significant, and that this effect is mostly concentrated on emissions that are harmful to the nervous and respiratory systems. Specifically, in column 1 we see that the growth in total pounds of generically harmful releases is 12% lower (with t-statistic 2.6), and in columns 2–3 we see that the growth in releases that are harmful to the nervous and respiratory systems is 16% and 12% lower (t-statistics 2.3 and 1.9), respectively, for facilities located close to the CEO's birthplace. In column 8, we find similar results using the RSEI toxicity-weighted pounds of emissions. So, as expected, our evidence suggests that a large part of pollution abatement relates to emissions that are likely to have adverse effects on CEOs' birthplace communities.[19]

4.5 Short-term versus Long-term Effect

In Table 9, we examine whether hometown facilities experience a different change in their toxic emissions growth in the short term versus in the long term. We estimate the model

$$\begin{aligned}\%\Delta Y_{i,j,t} =& \alpha_i + \alpha_{j,t} + \alpha_{s,t} + \alpha_{k,t} + \beta \cdot HometownFacility_{i,j,t-1} \\ &+ \gamma \cdot FacilityBecameHometownRecently_{i,j,t-1} + X'_{i,t-1}\gamma + \varepsilon_{i,j,t}, \end{aligned} \tag{3}$$

where the dependent variable is the percentage annual change in pounds of toxic emissions, $HometownFacility_{i,j,t-1}$ is an indicator variable that equals 1 if facility i is located within 20 miles from the CEO's birthplace and $FacilityBecameHometownRecently_{i,j,t-1}$ is an indicator variable that equals 1 if the CEO of firm j changed (or facility i was acquired by firm j) resulting in facility i switching from being non-hometown to being hometown in the period $[t-x, t-1]$. We estimate

[19]Indeed, in unreported results, we find little evidence of differences in the estimates for the most-harmful versus the less-harmful chemicals. This is possibly because, by definition, all TRI-reported chemicals are quite toxic, so there may not be sufficient within variation in toxicity (at least not in CEOs' eyes) to cause a differential reaction.

specifications for x equal to 1, 2, or 3, to allow for different definitions of the "short" term. The parameters of interest in this analysis is are β and γ: β captures the long-term effect of facility proximity on toxic emissions while γ captures the short-term effect in excess of the long-term effect.

In Table 9, we present the results of this analysis focusing on total emissions (columns 1–3) and on air emissions (columns 4–6). First, we see that the coefficient estimates for β (about -0.14 with average t-statistic 2.7) indicate a long-term 14% reduction in the toxic emissions growth rate for hometown facilities, which is the same as our baseline estimate from Table 4. Second, we see that the coefficient estimates for γ are close to zero and statistically insignificant, which is consistent with there being no pattern in the timing of when CEOs reduce pollution in their hometown facilities. Importantly, pollution reduction does not seem to be concentrated during the first few years of the CEO's tenure suggesting that CEOs are not deliberately selected to reduce pollution near their hometowns.

4.6 Self-reporting bias

A potential concern with our analysis relates to the self-reporting nature of the TRI data. For example, CEOs may have an incentive to under-report the emissions of their birthplace facilities in order to appear that they are favoring the hometown community. Even though previous studies have argued that under-reporting is likely to be limited due to the activities of the TRI Data Quality Program and the EPA's Compliance and Enforcement actions (e.g. Akey and Appel, 2021), in this section we conduct tests to confirm that our results are not an artifact of a self-reporting bias in the TRI database.

Motivated by Brehm and Hamilton (1996) who argue that potential misreporting is concentrated in facilities that release a small amount of emissions, in our first set of tests, we repeat our analysis using only high-emitting facilities. In Table 10, we repeat our baseline analysis limiting the sample to facilities with above-median total toxic emissions. The estimated coefficients remain statistically significant and of similar magnitude to the main analysis, suggesting that our results are not driven by misreporting.

In our second set of tests, we use EPA enforcement and penalty data to examine whether CEOs are more or less likely to incur actions and penalties for pollution violations in facilities near their birthplaces. If CEOs intentionally under-report the emissions of their facilities, there is increased likelihood that violations will be detected, hence penalties will be incurred, at these facilities. In

Table 11, we present results from estimating the effect of facility proximity on the U.S. dollar penalties (columns 1–4) and the number of enforcement actions (column 5–8) against a given facility-year. We consider separately actions and penalties related to violations of TRI reporting under the Emergency Planning & Community Right-To-Know Act (EPCRA), as well as formal administrative (AFR) and judicial (JDC) cases under all environmental statutes.[20] Reassuringly, we find that facilities close to CEOs' birthplaces do not incur significantly higher/lower penalties or case actions due to misreporting of toxic emissions.

5 Pollution Reduction Channel

There are various channels through which CEOs can reduce the pollution by facilities near their birthplace. They can (i) reallocate economic activities (hence emissions) across facilities of the same firm, (ii) downsize or simplify a facility's operations, or (iii) improve its production processes, and therefore increase production efficiency and decrease production waste. In what follows, we examine each of these channels separately.

5.1 Substitution across facilities

First, we study whether CEOs reduce the pollution by their hometown facilities by reallocating toxic emissions to other facilities of their firm. Following the literature that studies substitution effects in toxic emissions (e.g., Gibson, 2019), we estimate various forms of the model

$$\begin{aligned}\%\Delta Y_{i,j,t} =& \alpha_i + \alpha_{j,t} + \alpha_{s,t} + \alpha_{k,t} + \beta \cdot \mathit{HometownFacility}_{i,j,t-1} \\ &+ \gamma \cdot \mathit{SisterToHometownFacility}_{i,j,t-1} + X'_{i,t-1}\gamma + \varepsilon_{i,j,t}, \end{aligned} \tag{4}$$

where the dependent variable is the percentage annual change from year $t-1$ to year t in total pounds of toxic emissions released by facility i, $\mathit{HometownFacility}_{i,j,t-1}$ is an indicator variable

[20]Other environmental statutes include the the Clean Air Act (CAA), the Clean Water Act (CWA), the Resource Conservation and Recovery Act (RCRA), the Toxic Substances Control Act (TSCA), the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund), the Safe Drinking Water Act (SDWA), and the Marine Protection, Research, and Sanctuaries Act (MPRSA).

that equals 1 if facility i is located within 20 miles from the CEO's birthplace in year $t-1$ and $SisterToHometownFacility_{i,j,t-1}$ is an indicator variable that equals 1 if facility i is not located near the CEO's birthplace but has at least one sister facility (within the same industry and under the same parent firm j in year $t-1$) that is located near the CEO's birthplace. In other specifications, we replace $SisterToHometownFacility_{i,j,t-1}$ with the fraction of hometown facilities, the fraction of toxic emissions released by hometown facilities, and the fraction of employees at hometown facilities, among all facilities operating in the same parent firm, year, and industry. The parameter of interest in this model is γ, with positive values indicating a substitution effect, i.e., that CEOs increase the toxic emissions growth of non-hometown facilities that are similar to their hometown facilities.

In Table 12, we report our results for total emissions (in columns 1–4) and for air emissions (in columns 5–8). In all specifications, our estimate of the parameter γ is statistically insignificant. As one would expect that intra-firm substitution is more feasible when facilities are technologically similar, in the reported results we define sister facilities based on their 6-digit NAICS codes, but repeating our analysis using a coarser industry classification (3-digit NAICS code) yields identical results. These results indicate that there is no evidence of a substitution effect across facilities. Furthermore, in the Internet Appendix, we show that the results of our baseline analysis continue to hold when emissions are aggregated to the firm-city level which further suggests that CEOs do not shift emissions to nearby facilities. Taken together, our results imply that CEOs do not reduce toxic emissions growth in facilities close to their birthplace by simply (and rather wastefully) shifting emissions to other facilities.[21] Instead, they actively reduce emissions, either by reducing the facilities' scale or operational complexity or by improving their efficiency.

[21]In the Internet Appendix, we also study whether the CEO behavior we document is driven by their desire to deliver on certain environmental commitments on behalf of their firms. If firms have made commitments to reduce their future emissions, the CEO behavior we document may simply reflect CEOs choosing to implement this reduction on their hometown facilities rather than on facilities located elsewhere (which is essentially another form of substitution). In Table IA.C3, we show that our results continue to hold regardless of whether the parent firm has made such commitments, which suggests that firm commitments is not the primary driver of CEO hometown favoritism.

5.2 Facility Scale and Operational Complexity

Second, we evaluate the effect of CEO birthplace proximity on facility scale measured by input (employment) and output (sales) as well as on the complexity of the facility's operations measured by the number of chemicals reported to the TRI. In Table 13, we estimate the effect of facility proximity to CEO birthplaces on the number of facility employees (columns 1–2), the U.S. dollar value of facility sales (columns 3–4), and the number of chemicals used at the facility (column 5). All dependent variables in columns $1-4$ are taken from the NETS and YTS databases as the TRI database is not particularly informative about facility scale.[22] Across all specifications, we find that facility proximity to the CEO's birthplace has no effect on facility scale and operational complexity.[23] Furthermore, as we have shown in Table IA.C1, CEOs are not more likely to close down an existing facility near their birthplace. Overall, our results indicate that the channel through which CEOs reduce the pollution by their hometown facilities is likely not through downsizing, simplifying or ceasing their operations.[24]

5.3 Production Efficiency

As CEOs do not affect the scale of their hometown facilities, and since we have already showed above that they *do* affect their pollution, we expect that pollution intensity measured by emissions per unit of scale is significantly reduced for facilities near the CEO birthplaces. In column 1 (2) of Table 14, we present results from estimating versions of the model in Equation 1 where the dependent variable is the percentage annual change in pollution intensity defined as total pounds of emissions scaled by the number of facility employees (U.S. dollar value of sales). In column 3, we use an alternative measure commonly used by environmental studies to assess facilities' pollution reduction efforts that are

[22]Some studies in the literature on facility-level emissions use the production growth reported by the TRI as a measure of facility scale. This measure has worse coverage and is likely less accurate than the number of employees and value of sales reported by NETS and YTS, so we prefer to use the latter in our analysis. Regardless, repeating our analysis using the percentage change of facility production growth as our dependent variable yields identical results.

[23]The results in Table 13 continue to hold if we add controls for the lagged log number of employees and the lagged number of toxic chemicals as in the other tables.

[24]Using data for the period 1994–2005, Yonker (2017) also finds that CEOs do not reduce the scale (measured by employment) of facilities located near their birthplaces. On the contrary, he finds that, during periods of distress, CEOs are less likely to lay off workers near their birthplaces. In untabulated results, when we include in our analysis an interaction term between facility proximity and a distress period indicator, we verify that this result also holds in our data that covers the period 1992–2018.

not driven by production changes (see Berrone and Gomez-Mejia, 2009). This variable is defined as the percentage difference between a facility's actual and predicted total toxic release in year t, where predicted toxic releases are calculated as the facility's toxic releases in year $t-1$ multiplied by the facility's production ratio in year t (which is the quantity of output in year t divided by output in year $t-1$, as reported in TRI). In all specifications, we find that facilities located near CEO birthplaces are more likely to experience lower growth in their pollution intensities than those farther away. For example, in column 1 we see that facilities located close to the CEO's birthplace have 12% lower annual growth in pounds of total toxic emissions per employee. Given that the average annual growth rate of toxic emissions per employee across facilities and years is about -7%, this means that the rate at which a facility's pollution intensity is reduced over time almost triples when the CEO's birthplace is close to the facility.

Finally, we study how facilities' pollution intensity is reduced. Is it through the reduction of waste generation at the source, which is the most environmentally preferred strategy by the EPA? Or is it through other practices—e.g., recycling, energy recovery and/or treatment—that occur after chemicals have entered a waste stream? We present results from this analysis in Table 15. In column 1 (2), we examine the effect of facility-to-CEO-birthplace proximity on the percentage annual change in the facility's production waste on-site (off-site), i.e, the total quantity of chemicals that were produced as waste. We find that the growth in total production waste on-site is, on average, about 16% lower in facilities close to the CEO birthplace. Comparing this to our estimate of 14% lower growth in the total emissions released by these facilities (see column 4 of Table 4), we conclude that CEOs environmental improvement efforts are mostly, if not entirely, driven by source reduction activities (e.g., process or technology modifications, good operating practices, and product redesign). This is further confirmed by our results in columns 3–5 in the table, where we see that facility proximity has no effect on the impact-reduction activities of recycling, treatment, and energy recovery. Notably, in column 2 of the table we see that facility proximity has no effect on production waste off-site; this is consistent with our result from Section 5.1 that CEOs actively reduce toxic emissions and do not merely transfer emissions from one facility or location to another.

6 Moderating Effects on Favoritism

In this section, we examine factors that are likely to have a moderating effect on the documented favoritism toward the CEO's hometown facilities. Specifically, in Section 6.1 we examine whether the CEO's behavior is affected by county-level ambient pollution and unemployment level as well as industry-level environmental litigation shocks, and in Section 6.2 we examine whether it is affected by firm-level characteristics such as the firm's cash holdings, the CEO's pay incentives, and the quality of corporate governance.

6.1 External Factors

Environmental Protection vs. Economic Development In our analysis so far, we have shown that on average CEOs show favoritism toward their birthplaces by reducing the pollution of the hometown facilities. However, it is interesting to examine how CEOs trade off the objective of environmental protection versus that of economic development of their hometown communities. While CEOs appear to have an incentive to reduce toxic emissions as such emissions lead to adverse health outcomes (Chay and Greenstone, 2003), decreased worker productivity (Graff Zivin and Neidell, 2012), and lower home prices (Chay and Greenstone, 2005), they may also have an incentive not to do so in order to protect labor and encourage the economic growth of their hometown communities (e.g., Greenstone, 2002; Walker, 2013).[25] For example, Yonker (2017) finds that, in years during which firms are in economic distress, CEOs tend to limit employee reductions in facilities close to their birthplaces. In this section, we examine whether the effect of facility-to-CEO-birthplace proximity on toxic emissions varies with the level of ambient pollution and the economic development of the CEO's birthplace. Specifically, is a CEO more (less) likely to reduce the pollution of facilities near his birthplace when the pollution level (unemployment level) near his birthplace is high?

[25]On the one hand, Chay and Greenstone (2003) find that a 1 decrease in air pollutants results in a 0.35% decline in infant mortality rates; Graff Zivin and Neidell (2012) find that a decrease of 10 parts per billion in ozone concentrations increases worker productivity by 5.5%; Chay and Greenstone (2005) find that a $1mg/m^3$ decrease in air pollutants results in a 0.2%–0.4% increase in property values. On the other hand, Greenstone (2002) finds that the Clean Air Act of 1970 led to a loss of approximately 590,000 jobs, \$37 billion in capital stock, and \$75 billion of output in polluting industries, while Walker (2013) finds that workers in newly regulated plants lost more than \$5.4 billion in forgone earnings for the years after the policy change.

To address this question, we test if the effect of facility-to-CEO-birthplace proximity varies with the unemployment and pollution conditions that prevail at the county in which a facility is located. Specifically, we interact facility proximity with county-level measures of facility unemployment and ambient pollution and estimate the model

$$\begin{aligned}\%\Delta Y_{i,j,t} =& \alpha_i + \alpha_{j,t} + \alpha_{s,t} + \alpha_{k,t} + \beta \cdot HometownFacility_{i,j,t-1} \\ &+ \beta_U \cdot HometownFacility_{i,j,t-1} \cdot HighUnemployment_{c,t-1} \\ &+ \beta_A \cdot HometownFacility_{i,j,t-1} \cdot LowPollution_{c,t-1} + X'_{i,t-1}\gamma + \varepsilon_{i,j,t}, \end{aligned} \tag{5}$$

where the dependent variable is the percentage annual change in pounds of toxic emissions, $HighUnemployment_{c,t-1}$ is an indicator variable that equals 1 if county c in which facility i is located is in the top unemployment quartile in year $t-1$ and $LowPollution_{c,t-1}$ is an indicator variable that equals 1 if county c is designated as an "attainment" county by the EPA in year $t-1$, i.e., a county that meets the National Ambient Air Quality Standards set by the EPA.[26]

The results of this analysis are reported in Table 16. We find that the coefficients on the main effect (β) and the interaction with low pollution (β_A) are statistically significant, with the same magnitude but opposite signs. This indicates that pollution reduction is entirely concentrated in hometown facilities located in high-pollution areas, which is not surprising. On the other hand, the coefficient on the interaction with high unemployment (β_U) is statistically insignificant, which indicates that the CEO reduces the pollution of his hometown facilities even when the local unemployment level is high.[27] Overall, we conclude that CEOs' pollution reduction incentive is strongest when the demand for environmental quality is high and weakens as ambient pollution falls, but it survives even when local unemployment and the incentive for labor protection and economic development is high.

Environmental Litigation Shocks We also examine whether CEO incentives to reduce emissions near their hometowns are enhanced by environmental litigation shocks at the industry level. In Table 17, we interact facility proximity with the annual growth rate in the aggregate value of civil

[26]Our unemployment and pollution measures are at the county (rather than city/town) level to reduce concerns that they are affected by the operations of the specific facility and therefore the CEO's decisions.

[27]In untabulated results, we replace the high-unemployment dummy with an industry-distress dummy defined as in Yonker (2017) and we find that the coefficient on the interaction term remains statistically insignificant.

penalties initiated by the EPA against polluting facilities in the facility's industry (defined at 3-digit NAICS level). In Column 1, we use all civil penalties imposed by the EPA for violations of various environmental statutes, and in Columns 2 (3) we focus on administrative (judicial) penalties. We find that pollution reduction in hometown facilities is stronger when there is a shock to the probability of facing environmental litigation, and in particular judicial penalties which are considered to be more salient and threatening than administrative penalties.

6.2 Internal Factors

Our results above show that CEOs favor their birthplace facilities by engaging in activities that reduce the growth of toxic emissions at the source, which typically require investments in abatement technologies. As such CEO-initiated investments in pollution abatement are likely the results of agency problems, we hypothesize that these activities will be diminished if the CEO does not want to and/or cannot engage in them. Specifically, we expect that favoritism will be weaker when the CEO (i) does not have the incentive to make personal use of corporate assets because he is provided with high-powered pay incentives to maximize the returns to the shareholders and/or (ii) does not have the ability to make these investments due to the lack of corporate resources (e.g., in firms with lower cash holdings) or due to strong board oversight. In this section, we test these hypotheses by examining whether the effect of facility-to-CEO-birthplace proximity on toxic emissions varies with the CEO's pay incentives as well as the parent firm's level of cash holdings and quality of corporate governance.

In Table 18, we present the results of this analysis. In column 1, we interact facility proximity with the sensitivity of CEO wealth to the firm's stock price (delta). Delta is defined as the change in the value of the CEO's stock and option portfolio for a 1% change in the firm's stock price (see Core and Guay, 2002; Coles, Daniel and Naveen, 2006), and measures the extent to which the CEO's incentives are aligned with maximizing firm value.[28] If the CEO's preferential treatment of his hometown facilities involves a misuse of corporate resources, we expect to see that CEOs who have greater pay incentives are less likely to engage in this behavior, i.e., the coefficient on the interaction term will be positive. Indeed, we find that pollution reduction in hometown facilities is weaker

[28]We note that, since the delta variable is highly skewed, following the literature we use the natural logarithm of one plus delta in our regressions.

if the CEO's incentives are more closely aligned with firm value. This suggests that the pollution favoritism we document may be inconsistent with maximizing firm value.

In column 2, we interact facility proximity with the parent-firm's cash ratio. Cash ratio is defined as the ratio of cash and cash equivalents to assets in place, where assets in place are computed as assets minus cash and cash equivalents.[29] As expected, we see that the coefficient on the interaction term is negative and significant suggesting that activities that reduce emissions at the source require investment and are therefore less pronounced in firms that have less cash to make such investments.

In columns 3–5, we interact facility proximity with various indicator measures of "bad" governance. We use three measures of governance: The first is the G-index (governance index) of Gompers, Ishii and Metrick (2003), which is constructed as the sum of a possible 24 anti-takeover devices. The second is the E-index (entrenchment index) of Bebchuk, Cohen and Ferrell (2009), which is a refinement of the G-index that includes only six of the most important takeover provisions. In both indices, higher values indicate worse governance, so we define indicator variables equal to 1 if the index level is above median. These indices are available at the studies authors' websites for the period 1990–2006; for the G-index we carry forward the 2006 values of the index, while for the E-index we extend its definition to the end of our sample period in 2018.[30] The third measure of governance we use is the fraction of independent directors, where lower values indicate worse governance, so we define an indicator variable equal to 1 if this fraction is below median.[31] In all

[29]Repeating our analysis using the ratio of cash to total assets or the ratio of cash to sales yields similar results.

[30]For the G-index, see https://faculty.som.yale.edu/andrewmetrick/data/, and for the E-index see http://www.law.harvard.edu/faculty/bebchuk/data.shtml. Notably, in 2006, the underlying source of data that the G-index is based on—the Institutional Shareholder Services database (ISS), formerly RiskMetrics—removed several of the data items necessary for its construction, so it is not possible to extend its definition past 2006. On the other hand, the data items necessary for the construction of the E-index still exist in the ISS data hence it is possible to extend its calculation until the end of our sample in 2018. We note that some of the underlying data items used to calculate the E-index have slightly changed definitions from 2007 onward. However, there is an overlapping year, 2007, during which data based on both sets of definitions are available and thus we are able to calculate the E-index based on either and make a comparison; we find that the cross-sectional correlation in the two definitions of the E-index is 0.7, which is indeed quite high, and furthermore that the mean of the E-index is very similar across the two definitions. In any case, while our continuation of the E-index past 2006 may not be exactly the same measure as the one before 2006, it is quite close and preferable to the alternative which would be to assume that after 2006 the E-index remains constant for all firms.

[31]Information on the fraction of independent directors is available from the Institutional Shareholder Services

specifications, the coefficient on the interaction term is statistically indistinguishable from zero, which suggests that CEO favoritism is not affected by the quality of corporate governance.[32] This could indicate that the board, adopting a wider view that takes into account both firm value and environmental protection considerations, does not deter the CEO's behavior, especially as we have shown that this behavior is targeted to areas where pollution needs to be reduced and does not lead to wasteful cross-facility pollution substitution. Even though these are all indirect tests of the optimality of the CEO's behavior, it is interesting that favoritism reflected in environmental policies does not raise the same corporate governance issues as other manifestations of favoritism documented in previous studies (e.g., Yonker, 2017; Masulis and Reza, 2015), possibly because in this case the firm's costs are not high enough relative to the societal benefits to effect the board's intervention.[33]

7 Conclusion

We use facility-level data to study whether managers' intrinsic incentives affect firms' environmental policies. Exploiting within-facility variation in facility-to-CEO-birthplace distance due to CEO turnover, we find that the rate at which a facility's toxic emissions are reduced over time almost triples when the CEO's birthplace is close to the facility, which is consistent with CEOs' intrinsic motivation leading to better corporate environmental practices. The effect is stronger as the distance between the facility and the CEO birthplace decreases and operates on both the intensive and extensive margins. We explore the channel through which emission reduction in facilities close to CEOs' birthplaces is achieved, and we find that pollution abatement is implemented in a way that is beneficial for local communities and the overall pollution level, that is by decreasing toxic waste generation at the source rather than downsizing the facilities' operations or reallocating resources to sister facilities farther from the CEO's hometown. Examining external and internal factors that

database (formerly RiskMetrics) for the period 1996 onward.

[32]While the effectiveness of these measures in capturing the quality of corporate governance may have fallen over time as boards have become uniformly independent and takeovers have become less prevalent, repeating our analysis for the first half of our sample (up to 2006) yields similar results. Furthermore, other commonly used corporate governance measures such as board size and institutional ownership also yield insignificant results.

[33]Another explanation for why good governance does not moderate favoritism is that CEOs have superior information about their hometown facilities, hence their behavior is value-enhancing (see, e.g., Jiang, Qian and Yonker, 2019). Taken together, our findings in this section suggest that this explanation is less plausible.

are likely to have a moderating effect on the documented favoritism, we find that CEOs are less likely to engage in this behavior (i) when the facility is located in a low-polluting area, (ii) when CEOs are provided with high-powered pay incentives that align their interests with maximizing firm value, and (iii) when corporate resources are scarce.

Our study has important implications for modern corporations that face pressure to promote the interests of all stakeholders including customers, employees, local communities, and the environment, as well as for policymakers who seek to reduce pollution and have hitherto focused on market-based environmental policies or command-and-control regulations that have been proved imperfect. Our findings suggest that intrinsic incentives may provide a powerful tool to achieve the desired environmental outcomes and cater to stakeholders' demands for prosocial behavior. With the caveat that further research is needed to test whether directors and lower-level managers have the same impact as CEOs on pollution allocation decisions, an important policy implication of our results is that an effective way to internalize pollution externalities without harming local communities may be to have local representation on the board of directors or the management team of corporations, so that decision-makers' intrinsic incentives to protect these areas are reflected in corporate environmental policies. It should be noted that the importance of stakeholder representation in governance has long been recognized in civil-law countries such as Germany, where large firms are required to have employee representation on their supervisory boards. Our results suggest that a broader representation of stakeholders' interests including those of stakeholders outside the boundary of the firm, such as local communities, may be a powerful tool in the quest for effective solutions to reduce pollution.

Table 1: Variables and Definitions

This table presents the definition and source of the variables in our dataset. Panel A presents definitions for facility emissions variables, Panel B for facility control variables, Panel C for facility EPA penalties variables, Panel D for the facility-to-CEO-birthtown proximity variables, and Panel E for parent-firm variables. The abbreviations for the data sources are TRI for the Toxics Release Inventory, NETS for the National Establishment Time Series, YTS for the Your-economy Time Series, EPA for the U.S. Environmental Protection Agency, and ICIS FE&C for Federal enforcement and compliance data from the Integrated Compliance Information System.

Panel A: Facility Emissions

Variable	Definition	Source
Production Waste	Total quantity (in million pounds) of all chemicals produced as waste by the facility, i.e., the sum of total releases (on-site and off-site), total energy recovery (on-site and off-site), total quantity recycled (on-site and off-site), and total quantity treated (on-site and off-site).	TRI
Total Emissions	Total air, water, and ground emissions (in million pounds) released on-site at the reporting facility. Water emissions consist of releases to streams and other surface bodies of water. Ground emissions consist of waste disposed in underground injection wells, landfills, surface impoundments, or spills and leaks released to land.	TRI
Air Emissions	Air emissions (in million pounds) released on-site at the reporting facility. They consist of stack or point releases (e.g., through a vent or duct) and fugitive emissions (e.g., evaporative losses).	TRI
Harmful Emissions	Total air, water, and ground emissions (in million pounds) released on-site at the reporting facility that have known adverse effects on humans.	TRI
# of chemicals	Number of toxic chemicals used by the facility.	TRI

Panel B: Facility Control Variables

Variable	Definition	Source
Production Ratio	The ratio of production/activity in the reporting year divided by production/activity in the previous year. Facility-level ratios are computed as a weighted average of chemical-level ratios with weights equal to each chemical production waste, i.e., the contribution of each chemical to the quantity of all chemicals managed as waste by the facility.	TRI
Employment	Establishment number of employees. Employment is determined by directly contacting entities. Missing values are imputed based on statistical models.	NETS and YTS
Sales	Establishment sales (in million U.S. dollars). For non-standalone establishments, firm-level or, when unavailable, industry sales per employee are used to estimate establishment sales.	NETS and YTS
High Unemployment	Dummy=1 if the county where a TRI facility is located is in the top unemployment quartile in a given year.	U.S. Bureau of Labor Statistics
Low pollution	Dummy=1 if the county where a TRI facility is located meets the EPA National Ambient Air Quality Standards in a given year.	EPA

Panel C: Facility EPA Penalties

Variable	Definition	Source
Total Penalty	Total EPA penalty amount (in thousand U.S. dollars) for a given facility per year. Contains federal penalties, state and local penalties, Supplemental Environmental Project (SEP) costs, complying action costs, and federal and state and local cost recovery amounts.	ICIS FE&C
AFR Penalty	EPA penalty (in thousand U.S. dollars) amount for administrative-formal cases against a given facility per year. These actions are taken by the EPA or a state under its own authority, and are typically in the form of an order or agreement (with or without penalties) directing a facility to take action to come into compliance, or to clean up a site.	ICIS FE&C
JDC Penalty	EPA penalty amount (in thousand U.S. dollars) for judicial cases against a given facility per year. Judicial cases are formal lawsuits, filed in court, against facilities that have failed to comply with statutory or regulatory requirements, with an administrative order, or who owe response costs for cleaning up a site.	ICIS FE&C
EPCRA Penalty	EPA penalty amount (in thousand U.S. dollars) for violations of the Emergency Planning & Community Right-To-Know Act (EPCRA) against a given facility per year.	ICIS FE&C
Total Case Count	Total number of cases against a given facility per year.	ICIS FE&C
AFR Case Count	Number of administrative-formal cases against a given facility per year.	ICIS FE&C
JDC Case Count	Number of judicial cases against a given facility per year.	ICIS FE&C
EPCRA Case Count	Number of cases for violations of the EPCRA against a given facility per year.	ICIS FE&C

Panel D: Facility-to-CEO-birthplace Proximity

Variables	Definition	Source
Distance to CEO birthplace	Distance (in miles) between CEO's birth city/town and TRI facility.	TRI, Bernile, Bhagwat and Rau (2017), and hand collection
Hometown facility	Dummy= 1 if the CEO's birth city/town is within 20 miles from the TRI facility.	TRI, Bernile, Bhagwat and Rau (2017), and hand collection

Panel E: Firm-level Variables

Variable	Definition	Source
Assets	Value of total firm assets, in million U.S. dollars.	Compustat
Tobin Q	(Total Assets + Common Shares Outstanding $\times$ Closing Price Fiscal Year $-$ Common Equity $-$ Deferred Taxes)/Total Assets.	Compustat
Leverage	(Debt in Current Liabilities + Long $-$ Term Debt)/ Total Assets.	Compustat
CapEx/PPE	Capital Expenditure / Lagged Property, Plant and Equipment.	Compustat
Cash Ratio	(Cash + Cash Equivalents)/Net Assets.	Compustat
G-index	Governance index	Gompers, Ishii and Metrick (2003)
E-index	Entrenchment index	Bebchuk, Cohen and Ferrell (2009) and Institutional Shareholder Services
Fraction of independent directors	Fraction of independent directors on the firm's board.	Institutional Shareholder Services
CEO's delta	Sensitivity (in thousands of U.S. dollars) of the CEO's holdings of shares and options to a 1% change in the stock-market value of the parent firm. Calculation follows Core and Guay (2002).	Execucomp

Table 2: Summary Statistics for Facility Characteristics

This table presents summary statistics for facility characteristics, separately for all facilities and for hometown facilities defined as those within 20 miles from the CEO's birthplace. Our sample runs from 1992 to 2018 and contains 104,067 facility-years that appear in the TRI data and for which we know the birthplace of the parent firm's CEO and the facility employment level. Variable definitions and data sources can be found in Table 1.

	All Facilities			Hometown Facilities		
	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.
Facility Pollution						
Production Waste On-site (million pounds)	1.147	0.003	10.531	1.179	0.002	8.563
Production Waste Off-site (million pounds)	0.227	0.002	1.868	0.195	0.005	0.823
Total Emissions (million pounds)	0.211	0.001	2.440	0.191	0.001	0.787
Air Emissions (million pounds)	0.101	0.000	0.588	0.102	0.000	0.392
Harmful Emissions (million pounds)	0.097	0.000	0.815	0.082	0.000	0.319
# of chemicals	4.033	2	6.529	4.732	2	6.443
Δ(Production Waste On-site)	-0.068	-0.002	0.972	-0.071	-0.010	0.955
Δ(Production Waste Off-site)	-0.019	-0.001	1.066	0.000	-0.007	1.047
Δ(Total Emissions)	-0.075	-0.002	0.959	-0.087	-0.006	0.966
Δ(Air Emissions)	-0.078	-0.001	0.953	-0.074	-0.001	0.953
Δ(Harmful Emissions)	-0.106	-0.019	0.965	-0.085	-0.019	0.961
Facility Scale						
Facility Employment	364.755	145	817.078	489.313	160	873.903
log(Facility Employment)	4.818	4.984	1.576	5.002	5.081	1.737
Δ(Facility Employment)	-0.007	0.000	0.352	-0.019	0.000	0.431
Facility Sales (million U.S. $)	71.146	25.120	232.968	79.192	31.319	144.385
log(Facility Sales)	3.088	3.224	1.646	3.245	3.444	1.741
Δ(Facility Sales)	0.017	0.008	0.391	-0.001	0.002	0.460
Facility Location						
Distance to CEO hometown (miles)	791.612	644.324	615.958	9.299	8.725	5.608
Distance to CEO hometown < 100 miles	0.070	0	0.255			
Distance to CEO hometown < 50 miles	0.040	0	0.196			
Distance to CEO hometown < 20 miles	0.018	0	0.134			
High-Unemployment County	0.156	0	0.363	0.153	0	0.360
Low-Pollution County	0.652	1	0.476	0.416	0	0.493
Facility Penalties						
EPCRA Penalty (thousand U.S. $)	119.830	0.000	5,804.549	75.684	0.000	1,443.441
EPCRA Case Count	0.003	0	0.058	0.005	0	0.072

Table 3: Summary Statistics for Parent-firm Characteristics

This table presents summary statistics for parent-firm characteristics. Our sample runs from 1992 to 2018 and contains 6,207 parent firm-years. Variable definitions and data sources can be found in Table 1.

	Mean	Median	Std. Dev.
Firm Financials			
Assets (billion U.S. $)	16.997	4.360	51.909
Tobin's Q	1.740	1.424	1.078
Leverage	0.269	0.265	0.160
CapEx/PPE	0.200	0.170	0.145
Cash ratio	0.142	0.049	0.665
Board and CEO characteristics			
G-index	9.666	10	2.607
E-index	2.202	2	1.265
Fraction of independent directors	0.730	0.769	0.169
CEO's delta	5.708	5.723	1.555
Firm Facilities			
Fraction of hometown facilities	0.034	0.000	0.126
Fraction of pollution by hometown facilities	0.040	0.000	0.165
Fraction of employees in hometown facilities	0.040	0.000	0.147

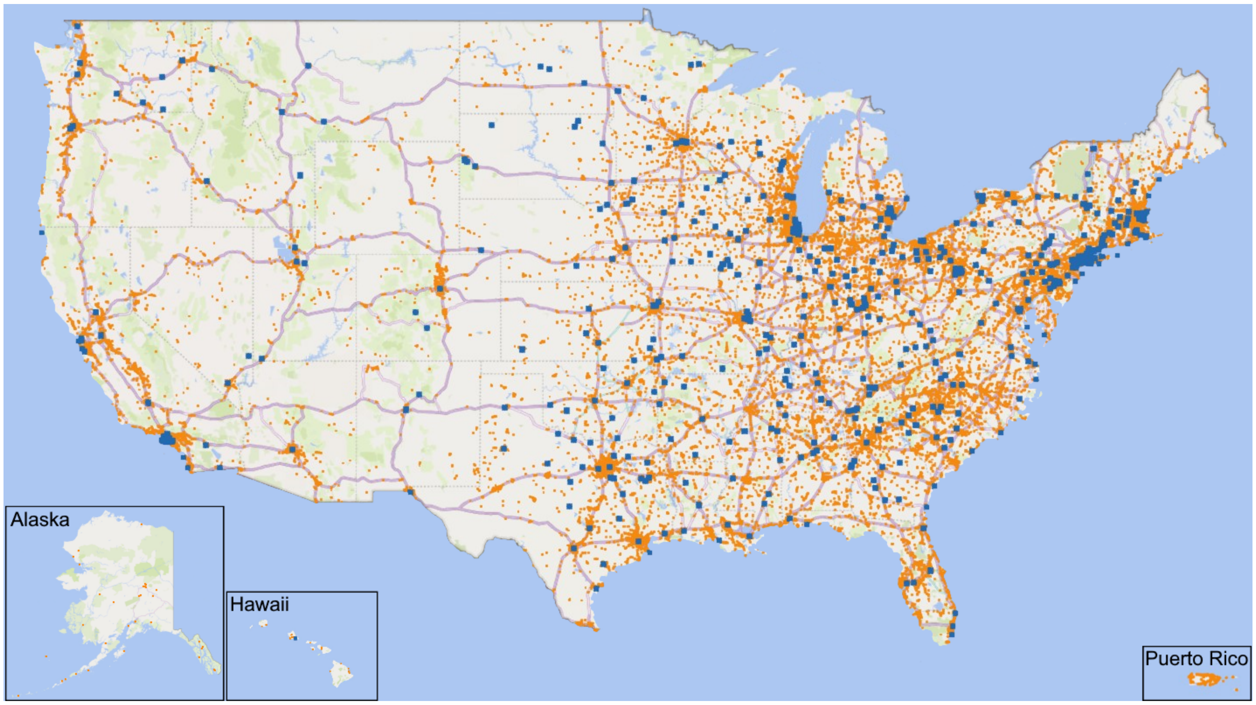


Figure 1: The figure presents the geographical distribution of the TRI facilities (orange circles) and the CEO birth cities/towns (blue squares) in our sample from 1992–2018.

Table 4: Effect of CEO Birthplace Proximity on Amount of Toxic Emissions

In Panel A (B), the dependent variable is the percentage annual change in pounds of air, water, and ground (just air) toxic emissions released on-site at the reporting facility. *Hometown facility* is an indicator that equals 1 if the CEO's birthplace is located within 20 miles from the facility's location. *Non-HQ facility* is an indicator that equals 1 if the parent-firm headquarters are not located within 20 miles from the facility's location. All specifications include facility-level and firm-by-year fixed effects. The specifications in columns 2 (in both panels) also include facility-state-by-year fixed effects, and the specifications in columns 3 (in both panels) also include facility-industry-by-year fixed effects. The specifications in columns 4 and 5 (in both panels) also include facility-level time-varying controls for the lagged log number of employees and the number of toxic chemicals used by the facility. *t*-statistics from standard errors clustered at the parent-firm level are reported. */**/*** indicate significance at the 10%/5%/1% levels.

Panel A: Δ (Total Emissions)

	(1)	(2)	(3)	(4)	(5)
Hometown facility	-0.091 **	-0.091 **	-0.095 **	-0.139 ***	-0.190 ***
	-2.167	-2.052	-2.200	-2.793	-2.857
Hometown facility x Non-HQ facility					0.107
					1.211
log(Facility employment)				-0.008	-0.005
				-1.621	-1.018
# of chemicals				-0.064 ***	-0.054 ***
				-3.568	-3.27
Facility FE	Yes	Yes	Yes	Yes	Yes
Firm-year FE	Yes	Yes	Yes	Yes	Yes
Facility State-year FE	No	Yes	Yes	Yes	Yes
Facility Industry-year FE	No	No	Yes	Yes	Yes
# of Observations	89,063	88,203	88,060	72,062	65,026
R^2	0.221	0.237	0.255	0.281	0.258

Panel B: Δ (Air Emissions)

	(1)	(2)	(3)	(4)	(5)
Hometown facility	-0.083 **	-0.082 *	-0.087 **	-0.146 ***	-0.207 ***
	-2.013	-1.951	-2.086	-3.054	-3.337
Hometown facility x Non-HQ facility					0.128
					1.453
log(Facility employment)				-0.007	-0.005
				-1.427	-0.955
# of chemicals				-0.064 ***	-0.054 ***
				-3.812	-3.600
Facility FE	Yes	Yes	Yes	Yes	Yes
Firm-year FE	Yes	Yes	Yes	Yes	Yes
Facility State-year FE	No	Yes	Yes	Yes	Yes
Facility Industry-year FE	No	No	Yes	Yes	Yes
# of Observations	86,724	85,880	85,737	70,215	63,317
R^2	0.223	0.239	0.258	0.284	0.260

Table 5: CEO Birthplace Proximity and Toxic Emissions – Varying Magnitude of Emissions Reduction

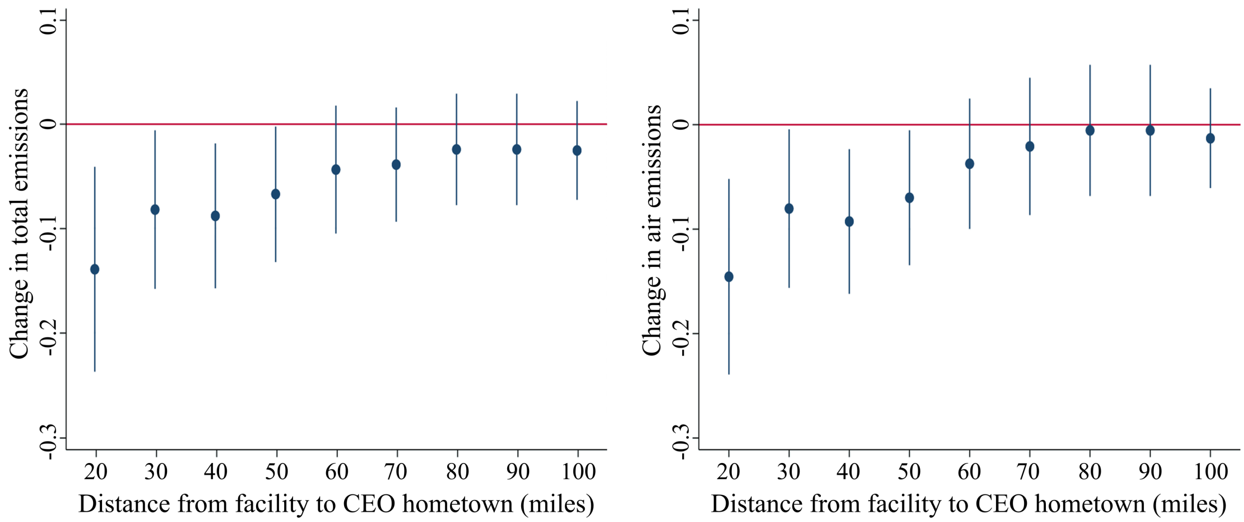
This table presents the effect of facility-to-CEO-birthplace proximity on toxic emission reductions of varying magnitudes. The dependent variable is an indicator that equals 1 if the percentage annual change in pounds of air, water, and ground emissions released on-site at the reporting facility is below $x\%$, where $x\%$ ranges from 0% in Column 1 down to −50% in Column 6. *Hometown facility* is an indicator that equals 1 if the CEO's birthplace is located within 20 miles from the facility's location. All specifications include facility-level fixed effects and facility-level time-varying controls for the lagged log number of employees and the number of toxic chemicals used by the facility. They also include firm-by-year fixed effects, facility-state-by-year fixed effects, and facility-industry-by-year fixed effects. t-statistics from standard errors clustered at the parent-firm level are reported. $^{*}/^{**}/^{***}$ indicate significance at the 10%/5%/1% levels.

	Δ (Total Emissions)					
	is < 0%	is < -10%	is < -20%	is < -30%	is < -40%	is < -50%
	(1)	(2)	(3)	(4)	(5)	(6)
Hometown facility	0.028	0.062 **	0.043 *	0.076 ***	0.070 ***	0.068 ***
	1.002	2.263	1.939	2.955	2.794	3.138
log(Facility employment)	0.004	0.002	0.001	0.001	0.001	0.000
	1.611	0.558	0.398	0.195	0.207	0.021
# of chemicals	0.025 ***	0.020 ***	0.017 ***	0.014 ***	0.012 ***	0.011 ***
	3.618	3.475	3.216	3.256	3.100	3.013
Facility FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm-year FE	Yes	Yes	Yes	Yes	Yes	Yes
Facility State-year FE	Yes	Yes	Yes	Yes	Yes	Yes
Facility Industry-year FE	Yes	Yes	Yes	Yes	Yes	Yes
# of Observations	72,057	72,057	72,057	72,057	72,057	72,057
R^2	0.256	0.262	0.273	0.284	0.292	0.299

Table 6: CEO Birthplace Proximity and Toxic Emissions – Varying Proximity

The dependent variable is the percentage annual change in pounds of air, water, and ground toxic emissions released on-site at the reporting facility. The various specifications differ in the way the effect of facility proximity to CEO birthplaces on toxic emissions is modeled. Column 1 includes an indicator variable that equals 1 if the CEO's birthplace is located within 100 miles from the facility's location. Column 2, additionally includes an interaction of this indicator variable with the log of the distance between the CEO's birthplace and the facility's location, to capture a continuous effect within the 100-mile radius. Column 3 includes two variables indicating that the distance between the CEO's birthplace and the facility's location is below and above, respectively, the median of the distribution conditional on being located within 100 miles of the facility. Column 4 includes four variables indicating that the distance between the CEO's birthplace and the facility's location is in the first, second, third, and fourth, respectively, quartile of the distribution conditional on being located within 100 miles of the facility. All specifications include facility-level fixed effects and facility-level time-varying controls for the lagged log number of employees and the number of toxic chemicals released on-site. They also include firm-by-year fixed effects, facility-state-by-year fixed effects, and facility-industry-by-year fixed effects. t-statistics from standard errors clustered at the parent-firm level are reported. $^{*}/^{**}/^{***}$ indicate significance at the 10%/5%/1% levels.

	Δ (Total Emissions)			
	(1)	(2)	(3)	(4)
Distance to CEO hometown < 100	-0.026	-0.231 **		
	-1.065	-2.585		
Distance to CEO hometown < 100 x log(Distance to CEO hometown)		0.057 **		
		2.320		
Distance to CEO hometown in H1(<100)			-0.083 **	
			-2.344	
Distance to CEO hometown in H2(<100)			0.014	
			0.440	
Distance to CEO hometown in Q1(<100)				-0.127 **
				-2.247
Distance to CEO hometown in Q2(<100)				-0.046
				-0.871
Distance to CEO hometown in Q3(<100)				0.035
				0.853
Distance to CEO hometown in Q4(<100)				-0.007
				-0.146
log(Facility employment)	-0.008	-0.008	-0.008	-0.008
	-1.615	-1.608	-1.618	-1.621
# of chemicals	-0.064 ***	-0.064 ***	-0.064 ***	-0.064 ***
	-3.565	-3.567	-3.566	-3.567
Facility FE	Yes	Yes	Yes	Yes
Firm-year FE	Yes	Yes	Yes	Yes
Facility State-year FE	Yes	Yes	Yes	Yes
Facility Industry-year FE	Yes	Yes	Yes	Yes
# of Observations	72,057	72,057	72,057	72,057
R^2	0.281	0.281	0.281	0.281



(a) Facility total emissions.

(b) Facility air emissions.

Figure 2: Effect of facility-to-CEO-birthplace proximity on facility emissions. This figure plots coefficient estimates and 95% confidence intervals on the facility-to-CEO-birthplace proximity indicator variable in successive estimations of Equation 1, where across estimations we raise the proximity cutoff from 20 miles to 100 miles, in 10-mile increments. In Panel (a) we plot the effect on total (air, ground, and water) emissions, and in Panel (b) we plot the effect on air emissions.

Table 7: CEO Birthplace Proximity and Toxic Emissions – Intensive and Extensive Margin

In Panel A (Panel B), the dependent variable is a measure of air, water, and ground toxic (just air) emissions released on-site at the reporting facility. In both panels, in Column 1 this is a measure of the intensive margin of toxic emissions, and in Columns 2–4 it is a measure of the extensive margin of toxic emissions. Specifically, in Column 1 the measure of toxic emissions is the percentage annual change in pounds of toxic emissions, but values indicating that a facility either starts or stops reporting toxic emissions to the TRI are set to missing hence the corresponding observations are omitted from the estimation. In Column 2, the measure of toxic emissions equals −1 (+1) for years the facility stops (starts) reporting toxic emissions to the TRI and 0 in all other years. In Column 3 (4), it is an indicator variable that equals 1 if the facility stops (starts) reporting toxic emissions to the TRI. *Hometown facility* is an indicator that equals 1 if the CEO's birthplace is located within 20 miles from the facility's location. All specifications include facility-level fixed effects and facility-level time-varying controls for the lagged log number of employees and the number of toxic chemicals used by the facility. They also include firm-by-year fixed effects, facility-state-by-year fixed effects, and facility-industry-by-year fixed effects. t-statistics from standard errors clustered at the parent-firm level are reported. $^{*}/^{**}/^{***}$ indicate significance at the 10%/5%/1% levels.

Panel A: Total pollution

	Intensive Margin	Extensive Margin		
		Stops & Starts	Stops	Starts
	(1)	(2)	(3)	(4)
Hometown facility	-0.080 **	-0.037 **	0.023 *	-0.014
	-2.032	-2.254	1.795	-1.029
log(Facility employment)	-0.003	-0.003	-0.001	-0.003 ***
	-0.718	-1.642	-0.622	-2.673
# of chemicals	-0.026 **	-0.020 ***	-0.000	-0.020 ***
	-2.472	-3.789	-0.201	-3.937
Facility FE	Yes	Yes	Yes	Yes
Firm-year FE	Yes	Yes	Yes	Yes
Facility State-year FE	Yes	Yes	Yes	Yes
Facility Industry-year FE	Yes	Yes	Yes	Yes
# of Observations	61,237	72,057	72,057	72,057
R^2	0.233	0.284	0.358	0.406

Panel B: Air pollution

	Intensive Margin	Extensive Margin		
		Stops & Starts	Stops	Starts
	(1)	(2)	(3)	(4)
Hometown facility	-0.099 ***	-0.037 **	0.031 **	-0.005
	-2.721	-2.158	2.047	-0.351
log(Facility employment)	-0.002	-0.002	-0.001	-0.003 **
	-0.554	-1.239	-0.463	-2.473
# of chemicals	-0.027 ***	-0.020 ***	-0.000	-0.020 ***
	-2.941	-3.722	-0.184	-3.879
Facility FE	Yes	Yes	Yes	Yes
Firm-year FE	Yes	Yes	Yes	Yes
Facility State-year FE	Yes	Yes	Yes	Yes
Facility Industry-year FE	Yes	Yes	Yes	Yes
# of Observations	59,595	70,210	70,210	70,210
R^2	0.236	0.285	0.357	0.407

Table 8: Effect of CEO Birthplace Proximity on Amount of Harmful Emissions

In Columns 1 – 7, the dependent variable is the percentage annual change in pounds of air, water, and ground toxic emissions released on-site of chemicals that have been identified by the EPA's Integrated Risk Information System (IRIS) as particularly hazardous for human health. In Column 1, the definition of harm is general, and in Columns 2–7 it is specific to the nervous, respiratory, urinary, developmental, hematologic, and hepatic system, respectively. In Column 8, the dependent variable is the percentage annual change in toxicity-weighted pounds (RSEI Hazard) of the chemicals released on-site at the reporting facility. *Hometown facility* is an indicator that equals 1 if the CEO's birthplace is located within 20 miles from the facility's location. All specifications include facility-level fixed effects and facility-level time-varying controls for the lagged log number of employees and the number of toxic chemicals used by the facility. They also include firm-by-year fixed effects, facility-state-by-year fixed effects, and facility-industry-by-year fixed effects. *t*-statistics from standard errors clustered at the parent-firm level are reported. */**/*** indicate significance at the 10%/5%/1% levels.

	Harmful	Nervous	Respiratory	Urinary	Development	Hematologic	Hepatic	RSEI Hazard
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Hometown facility	-0.124 ***	-0.156 **	-0.115 *	0.007	0.010	-0.029	0.039	-0.128 **
	-2.597	-2.304	-1.935	0.078	0.162	-0.245	0.331	-2.413
log(Facility employment)	-0.008	-0.008	-0.004	0.003	-0.020 *	-0.003	-0.014	-0.003
	-1.391	-1.035	-0.529	0.354	-1.783	-0.306	-1.260	-0.596
# of chemicals	-0.054 ***	-0.047 ***	-0.044 ***	-0.040 **	-0.045 ***	-0.037 **	-0.043 ***	-0.071 ***
	-3.190	-2.838	-2.627	-2.362	-3.317	-2.083	-2.622	-3.688
Facility FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm-year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Facility State-year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Facility Industry-year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
# of Observations	52,480	35,329	30,282	23,857	21,971	13,246	16,955	71,206
R^2	0.310	0.366	0.354	0.389	0.411	0.448	0.440	0.268

Table 9: CEO Birthplace Proximity and Toxic Emissions – Short- vs. Long-term

In Columns 1–3 (Columns 4–6), the dependent variable is the percentage annual change in pounds of air, water, and ground (just air) emissions released on-site at the reporting facility. *Hometown facility* is an indicator that equals 1 if the CEO's birthplace is located within 20 miles from the facility's location. *Facility became hometown in past x years* is an indicator variable that equals 1 if the CEO changed (or the facility was acquired) resulting in the facility switching from being non-hometown to being hometown within the past *x* years, where *x* can equal 1 (in Columns 1 and 4), 2 (in Columns 2 and 5), or 3 (in Columns 3 and 6). The coefficients on these variables capture the differential effect in the short-term versus the long-term that such a switch in a facility's proximity to the CEO's birthplace has on its toxic emissions. All specifications include facility-level fixed effects and facility-level time-varying controls for the lagged log number of employees and the number of toxic chemicals used by the facility. They also include firm-by-year fixed effects, facility-state-by-year fixed effects, and facility-industry-by-year fixed effects. *t*-statistics from standard errors clustered at the parent-firm level are reported. */**/*** indicate significance at the 10%/5%/1% levels.

	Δ (Total Emissions)			Δ (Air Emissions)		
	(1)	(2)	(3)	(4)	(5)	(6)
Hometown facility	-0.134 **	-0.142 ***	-0.136 **	-0.148 ***	-0.147 ***	-0.145 ***
	-2.574	-2.681	-2.462	-2.875	-2.744	-2.622
Facility became hometown in past 1 year	-0.052			0.021		
	-0.384			0.166		
Facility became hometown in past 2 years		0.017			0.007	
		0.202			0.089	
Facility became hometown in past 3 years			-0.015			-0.002
			-0.204			-0.024
log(Facility employment)	-0.008	-0.008	-0.008	-0.007	-0.007	-0.007
	-1.624	-1.621	-1.624	-1.429	-1.429	-1.43
# of chemicals	-0.064 ***	-0.064 ***	-0.064 ***	-0.064 ***	-0.064 ***	-0.064 ***
	-3.568	-3.568	-3.568	-3.812	-3.811	-3.811
Facility FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm-year FE	Yes	Yes	Yes	Yes	Yes	Yes
Facility State-year FE	Yes	Yes	Yes	Yes	Yes	Yes
Facility Industry-year FE	Yes	Yes	Yes	Yes	Yes	Yes
# of Observations	72,057	72,057	72,057	70,210	70,210	70,210
R^2	0.281	0.281	0.281	0.284	0.284	0.284

Table 10: CEO Birthplace Proximity and Toxic Emissions – High Polluters

In this table, we repeat our baseline analysis restricting attention to high-polluting facilities, defined as facilities with above-median emissions. In Column 1 (2), the dependent variable is the percentage annual change in pounds of air, water, and ground (just air) toxic emissions released on-site at the reporting facility. *Hometown facility* is an indicator that equals 1 if the CEO's birthplace is located within 20 miles from the facility's location. All specifications include facility-level fixed effects and facility-level time-varying controls for the lagged log number of employees and the number of toxic chemicals used by the facility. All specifications also include firm-by-year fixed effects, facility-state-by-year fixed effects, and facility-industry-by-year fixed effects. t-statistics from standard errors clustered at the parent-firm level are reported. $^{*}/^{**}/^{***}$ indicate significance at the 10%/5%/1% levels.

	Δ (Total Emissions)	Δ (Air Emissions)
	(1)	(2)
Hometown facility	-0.103 **	-0.108 **
	-2.142	-2.278
log(Facility employment)	-0.004	-0.003
	-0.783	-0.577
# of chemicals	-0.051 ***	-0.053 ***
	-3.403	-3.736
Facility FE	Yes	Yes
Firm-year FE	Yes	Yes
Facility State-year FE	Yes	Yes
Facility Industry-year FE	Yes	Yes
# of Observations	57,647	56,561
R^2	0.293	0.296

Table 11: Effect of CEO Birthplace Proximity on Actions and Penalties for Pollution Violations

In Columns 1–4 the dependent variable is the log of one plus the EPA penalty amount (in dollars) for various violations by the reporting facility in a given year. Specifically, Column 1 relates to all violations, Column 2 relates to violations of the Emergency Planning & Community Right-To-Know Act (EPCRA), Column 3 relates to administrative-formal cases under any environmental statute, and Columns 4 relates to judicial cases under any environmental statute. In Columns 5–8, the dependent variable is the log of one plus the *number of cases* against the reporting facility in a given year, defined analogously for different types of violations. *Hometown facility* is an indicator that equals 1 if the CEO's birthplace is located within 20 miles from the facility's location. All specifications include facility-level fixed effects and facility-level time-varying controls for the lagged log number of employees and the number of toxic chemicals used by the facility. They also include firm-by-year fixed effects, facility-state-by-year fixed effects, and facility-industry-by-year fixed effects. t-statistics from standard errors clustered at the parent-firm level are reported. $^{*}/^{**}/^{***}$ indicate significance at the 10%/5%/1% levels.

	log(Penalty)				log(Case Count)			
	Total	EPCRA	AFR	JDC	Total	EPCRA	AFR	JDC
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Hometown facility	-0.101	0.013	-0.028	-0.079	-0.005	0.003	-0.002	-0.003
	-0.937	0.462	-0.411	-1.014	-0.688	1.186	-0.314	-0.981
log(Facility employment)	0.003	-0.002	-0.002	0.003	-0.000	-0.000	-0.000	0.000
	0.260	-0.492	-0.238	0.446	-0.163	-0.679	-0.291	0.106
# of chemicals	-0.001	0.001	0.002	-0.003	-0.000	0.000	0.000	-0.000
	-0.163	0.625	0.541	-1.333	-0.393	0.632	0.017	-1.343
Facility FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm-year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Facility State-year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Facility Industry-year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
# of Observations	94,425	94,425	94,425	94,425	94,425	94,425	94,425	94,425
R^2	0.283	0.194	0.223	0.323	0.257	0.192	0.229	0.301

Table 12: Intra-firm Substitution Effect of CEO Birthplace Proximity on Amount of Toxic Emissions

In Columns 1–4 (columns 5–8), the dependent variable is the percentage annual change in pounds of air, water, and ground (just air) toxic emissions released on-site at the reporting facility. The various specifications differ in the way the substitution effect between hometown and non-hometown facility pollution is modeled. Columns 1 and 5 include an indicator variable that equals 1 if there exists a hometown facility operating in the same NAICS 6-digit industry, parent firm, and year as the reporting facility. Columns 2 and 6 include the ratio of the number of hometown facilities over the number of all facilities operating within the same industry and under the same parent firm-year. Columns 3 and 7 include the ratio of toxic emissions released by hometown facilities over the toxic emissions released by all facilities operating within the same industry and under the same parent-firm-year. Columns 4 and 8 include the ratio of the total number of employees at hometown facilities over the total number of employees at all facilities operating within the same industry and under the same parent-firm-year. In all specifications, a facility is considered to be near the CEO's hometown if the CEO's birthplace is located within 20 miles from the facility's location. All specifications include facility-level fixed effects and facility-level time-varying controls for the lagged log number of employees and the number of toxic chemicals used by the facility. They also include firm-by-year fixed effects, facility-state-by-year fixed effects, and facility-industry-by-year fixed effects. t-statistics from standard errors clustered at the parent-firm level are reported. $^{*}/^{**}/^{***}$ indicate significance at the 10%/5%/1% levels.

	Δ (Total Emissions)				Δ (Air Emissions)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Hometown facility	-0.129 **	-0.132 **	-0.106 **	-0.133 **	-0.132 **	-0.133 **	-0.107 **	-0.142 ***
	-2.154	-2.320	-2.165	-2.445	-2.214	-2.401	-2.152	-2.702
Sister to hometown facility	0.012				0.016			
	0.356				0.481			
Fraction of hometown sister facilities		0.070				0.115		
		0.330				0.522		
Fraction of pollution by hometown sister facilities			0.180				0.186	
			1.154				1.150	
Fraction of employees in hometown sister facilities				0.050				0.028
				0.330				0.169
log(Facility employment)	-0.008	-0.008	-0.008	-0.008	-0.007	-0.007	-0.007	-0.007
	-1.622	-1.622	-1.425	-1.604	-1.429	-1.429	-1.317	-1.423
# of chemicals	-0.064 ***	-0.064 ***	-0.061 ***	-0.064 ***	-0.064 ***	-0.064 ***	-0.062 ***	-0.064 ***
	-3.567	-3.567	-3.500	-3.568	-3.811	-3.810	-3.751	-3.812
Facility FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm-year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Facility State-year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Facility Industry-year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
# of Observations	72,057	72,057	71,363	72,057	70,210	70,210	69,523	70,210
R^2	0.281	0.281	0.272	0.281	0.284	0.284	0.274	0.284

Table 13: Effect of CEO Birthplace Proximity on Facility Scale and Operational Complexity

In Columns 1–2 (3–4), the dependent variable is the log number of facility employees (U.S. dollar value of facility sales). In Columns 1 and 3, the data on the facility scale (i.e., employees and sales) comes from NETS (YTS) if the match between the TRI and NETS (YTS) databases is of superior quality, or is the average of the two if the match between TRI and the two databases is of the same quality. In Columns 2 and 4, the data on the facility scale is averaged across the NETS and YTS databases. In Column 5, the dependent variable is the number of toxic chemicals used by the facility. *Hometown facility* is an indicator that equals 1 if the CEO's birthplace is located within 20 miles from the facility's location. All specifications include facility-level fixed effects, firm-by-year fixed effects, facility-state-by-year fixed effects, and facility-industry-by-year fixed effects. t-statistics from standard errors clustered at the parent-firm level are reported. $^{*}/^{**}/^{***}$ indicate significance at the 10%/5%/1% levels.

	log(Facility employment)		log(Facility sales)		# of chemicals
	(1)	(2)	(3)	(4)	(5)
Hometown facility	-0.072	-0.071	-0.109	-0.082	-0.010
	-0.681	-0.776	-0.964	-0.787	-0.050
Facility FE	Yes	Yes	Yes	Yes	Yes
Firm-year FE	Yes	Yes	Yes	Yes	Yes
Facility State-year FE	Yes	Yes	Yes	Yes	Yes
Facility Industry-year FE	Yes	Yes	Yes	Yes	Yes
# of Observations	131,739	131,739	131,144	131,162	205,310
R^2	0.805	0.834	0.774	0.794	0.863

Table 14: Effect of CEO Birthplace Proximity on Facility Pollution Intensity

In Columns 1 (2), the dependent variable is the percentage annual change in pollution intensity defined as total pounds of air, water, and ground emissions released on-site at the reporting facility scaled by the number of facility employees (U.S. dollar value of facility sales). In Column 3, the dependent variable is the percentage difference between the actual and predicted (based on the facility's production growth in the previous year) toxic release in the current year. *Hometown facility* is an indicator that equals 1 if the CEO's birthplace is located within 20 miles from the facility's location. All specifications include facility-level fixed effects and facility-level time-varying controls for the lagged log number of employees and the number of toxic chemicals used by the facility. They also include firm-by-year fixed effects, facility-state-by-year fixed effects, and facility-industry-by-year fixed effects. t-statistics from standard errors clustered at the parent-firm level are reported. $^{*}/^{**}/^{***}$ indicate significance at the 10%/5%/1% levels.

	$\Delta\frac{\text{Emissions}}{\text{Employment}}$	$\Delta\frac{\text{Emissions}}{\text{Sales}}$	Actual - Predicted Emissions
	(1)	(2)	(3)
Hometown facility	-0.124 **	-0.109 *	-0.141 ***
	-2.071	-1.796	-2.701
log(Facility employment)	0.139 ***	0.136 ***	-0.010 *
	20.780	20.245	-1.808
# of chemicals	-0.080 ***	-0.080 ***	-0.061 ***
	-6.052	-5.957	-3.702
Facility FE	Yes	Yes	Yes
Firm-year FE	Yes	Yes	Yes
Facility State-year FE	Yes	Yes	Yes
Facility Industry-year FE	Yes	Yes	Yes
# of Observations	70,380	70,104	72,057
R^2	0.283	0.283	0.287

Table 15: Effect of CEO Birthplace Proximity on Facility Production Waste

In Column 1 (2), the dependent variable is the percentage annual change in the reporting facility's on-site (off-site) production waste; this is the total quantity of chemicals that were produced as waste on-site (transferred as waste off-site), i.e., the sum of quantity released, quantity recycled, quantity treated, and energy recovered. In Columns 3, 4, and 5, the dependent variable is the percentage annual change in the reporting facility's quantity recycled, quantity treated, and energy recovered on-site, respectively. *Hometown facility* is an indicator that equals 1 if the CEO's birthplace is located within 20 miles from the facility's location. All specifications include facility-level fixed effects and facility-level time-varying controls for the lagged log number of employees and the number of toxic chemicals used by the facility. They also include firm-by-year fixed effects, facility-state-by-year fixed effects, and facility-industry-by-year fixed effects. t-statistics from standard errors clustered at the parent-firm level are reported. $^{*}/^{**}/^{***}$ indicate significance at the 10%/5%/1% levels.

	Production on-site	Production off-site	Recycling on-site	Treatment on-site	Recovery on-site
	(1)	(2)	(3)	(4)	(5)
Hometown facility	-0.157 ***	-0.054	0.142	-0.068	0.068
	-3.564	-0.848	0.431	-0.824	0.256
log(Facility employment)	-0.009 *	-0.001	0.010	-0.012 *	0.037
	-1.943	-0.231	0.491	-1.841	1.415
# of chemicals	-0.065 ***	-0.063 ***	-0.040 ***	-0.028 **	-0.021 ***
	-3.735	-3.756	-3.242	-2.054	-2.817
Facility FE	Yes	Yes	Yes	Yes	Yes
Firm-year FE	Yes	Yes	Yes	Yes	Yes
Facility State-year FE	Yes	Yes	Yes	Yes	Yes
Facility Industry-year FE	Yes	Yes	Yes	Yes	Yes
# of Observations	75,081	69,530	10,762	26,989	2,580
R^2	0.276	0.252	0.483	0.377	0.615

Table 16: External Moderating Factors – Environmental Protection vs. Economic Development

The dependent variable is the percentage annual change in pounds of air, water, and ground emissions released on-site at the reporting facility. *Hometown facility* is an indicator that equals 1 if the CEO's birthplace is located within 20 miles from the facility's location. *Low pollution* is an indicator variable that equals 1 if the facility county is designated as an "attainment" county by the EPA in a given year. *High unemployment* is an indicator variable that equals 1 if the facility county is in the top unemployment quartile in a given year. All columns include the *Hometown facility* indicator variable. Column 1 includes the level and interaction of *Low pollution* with *Hometown facility*. Column 2 includes the level and interaction of *High unemployment* with *Hometown facility*. Column 3 includes the levels of *Low pollution* and *High unemployment,* and their interactions with *Hometown facility*. Column 4 also includes the triple interaction of *Hometown facility* with *Low pollution* and with *High unemployment*. All specifications include facility-level fixed effects and facility-level time-varying controls for the lagged log number of employees and the number of toxic chemicals used by the facility. They also include firm-by-year fixed effects, facility-state-by-year fixed effects, and facility-industry-by-year fixed effects. t-statistics from standard errors clustered at the parent-firm level are reported. */**/*** indicate significance at the 10%/5%/1% levels.

	Δ (Total Emissions)			
	(1)	(2)	(3)	(4)
Hometown facility	-0.207 ***	-0.126 **	-0.194 ***	-0.192 ***
	-3.489	-2.270	-3.109	-3.026
Low pollution	0.033		0.032	0.032
	1.621		1.638	1.642
High unemployment		0.006	0.007	0.007
		0.408	0.442	0.444
Hometown facility	0.197 **		0.202 **	0.195 **
x Low pollution	2.270		2.318	2.094
Hometown facility		-0.053	-0.056	-0.067
x High unemployment		-0.564	-0.598	-0.560
Hometown facility				0.034
x Low pollution x High unemployment				0.198
log(Facility employment)	-0.008 *	-0.009 *	-0.009 *	-0.009 *
	-1.649	-1.699	-1.727	-1.720
# of chemicals	-0.064 ***	-0.064 ***	-0.064 ***	-0.064 ***
	-3.568	-3.540	-3.540	-3.540
Facility FE	Yes	Yes	Yes	Yes
Firm-year FE	Yes	Yes	Yes	Yes
Facility State-year FE	Yes	Yes	Yes	Yes
Facility Industry-year FE	Yes	Yes	Yes	Yes
# of Observations	72,057	71,591	71,591	71,591
R^2	0.281	0.281	0.281	0.281

Table 17: External Moderating Factors – Environmental Litigation Shocks

The dependent variable is the percentage annual change in pounds of air, water, and ground emissions released on-site at the reporting facility. *Hometown facility* is an indicator that equals 1 if the CEO's birthplace is located within 20 miles from the facility's location. Δ*(Total Penalty)* is the annual growth rate in the aggregate value of civil penalties initiated by the EPA against polluting facilities in the facility's industry (defined at 3-digit NAICS level). Δ*(AFR Penalty)* and Δ*(JDC Penalty)* are similar measures for administrative-formal and judicial cases respectively. Detailed definitions for these variables are provided in Table 1. All specifications include facility-level fixed effects and facility-level time-varying controls for the lagged log number of employees and the number of toxic chemicals used by the facility. They also include firm-by-year fixed effects, facility-state-by-year fixed effects, and facility-industry-by-year fixed effects. t-statistics from standard errors clustered at the parent-firm level are reported. $^{*}/^{**}/^{***}$ indicate significance at the 10%/5%/1% levels.

	Δ (Total Emissions)					
	(1)		(2)		(3)	
Hometown facility	-0.142	***	-0.144	***	-0.143	***
	-2.672		-2.700		-2.707	
Hometown facility	-0.031	**				
x Δ(Total Penalty)	-2.022					
Hometown facility			0.005			
x Δ(AFR Penalty)			0.250			
Hometown facility					-0.010	**
x Δ(JDC Penalty)					-2.196	
log(Facility employment)	-0.009	*	-0.009	*	-0.009	*
	-1.899		-1.913		-1.914	
# of chemicals	-0.064	***	-0.064	***	-0.064	***
	-3.346		-3.347		-3.346	
Facility FE	Yes		Yes		Yes	
Firm-year FE	Yes		Yes		Yes	
Facility State-year FE	Yes		Yes		Yes	
Facility Industry-year FE	Yes		Yes		Yes	
# of Observations	66,822		66,822		66,822	
R^2	0.274		0.274		0.274	

Table 18: Internal Moderating Factors

The dependent variable is the percentage annual change in pounds of air, water, and ground emissions released on-site at the reporting facility. *Hometown facility* is an indicator that equals 1 if the CEO's birthplace is located within 20 miles from the facility's location. *log CEO's Delta* is the logarithm of one plus the sensitivity (in thousands of U.S. dollars) of the CEO's holdings of shares and options to a 1% change in the stock-market value of the parent firm. *Cash ratio* is the parent-firm's cash-over-assets ratio. *High G-index* is an indicator variable that equals 1 if the G-index of Gompers, Ishii and Metrick (2003) is above median. *High E-index* is an indicator variable that equals 1 if the E-index of Bebchuk, Cohen and Ferrell (2009) is above median. High levels of both indices indicate worse governance. *Low fraction of independent directors* is an indicator variable that equals 1 if the proportion of independent directors on the parent-firm's board of directors is below median, which indicates worse governance. All specifications include facility-level fixed effects and facility-level time-varying controls for the lagged log number of employees and the number of toxic chemicals used by the facility. They also include firm-by-year fixed effects, facility-state-by-year fixed effects, and facility-industry-by-year fixed effects. *t*-statistics from standard errors clustered at the parent-firm level are reported. */**/*** indicate significance at the 10%/5%/1% levels.

	Δ (Total Emissions)				
	(1)	(2)	(3)	(4)	(5)
Hometown facility	-0.537 **	-0.109 **	-0.196 ***	-0.175 ***	-0.127 *
	-2.454	-2.246	-3.097	-3.220	-1.847
Hometown facility x log(CEO's Delta)	0.063 *				
	1.765				
Hometown facility x Cash ratio		-0.048 **			
		-2.168			
Hometown facility x High G-index			0.054		
			0.661		
Hometown facility x High E-index				0.020	
				0.253	
Hometown facility x Low fraction independent directors					-0.090
					-0.847
log(Facility employment)	-0.007	-0.005	-0.008	-0.009 *	-0.006
	-1.288	-0.893	-1.446	-1.669	-0.955
# of chemicals	-0.083 ***	-0.054 ***	-0.084 ***	-0.064 ***	-0.059 ***
	-5.610	-3.272	-5.446	-3.703	-2.894
Facility FE	Yes	Yes	Yes	Yes	Yes
Firm-year FE	Yes	Yes	Yes	Yes	Yes
Facility State-year FE	Yes	Yes	Yes	Yes	Yes
Facility Industry-year FE	Yes	Yes	Yes	Yes	Yes
# of Observations	68,215	65,320	68,480	69,990	49,479
R^2	0.293	0.257	0.287	0.281	0.302

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