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Abstract

This study uses an inductive approach to explore the impact of firms' supporting different philanthropic causes on labor productivity. Our orienting position is motivated by experimental evidence in social psychology showing individuals are more charitable toward victims of negative welfare shocks (e.g., those afflicted by disasters) than to victims of chronic conditions (e.g., those living in poverty). The matched difference-in-difference estimates, which survive a battery of controls and dual fixed effects, predict that the philanthropy of U.S. companies is associated with a 6.63% greater increase in labor productivity when it targets welfare recovery after sudden negative shocks than when it targets the enhancement of chronic conditions. The study evaluates underlying mechanisms and offers ways to rationalize past equivocal results of the strategic value of company philanthropy.

Keywords: corporate philanthropy, labor productivity, nonmarket strategy, corporate social responsibility

1. Introduction

Amid continued debate regarding the role of financial incentives to motivate worker productivity (Hölmstrom 1979, Kryscynski et al. 2021, Larkin et al. 2012), managers have increasingly turned to prosocial behavior (Cassar and Meier 2018). Yet, research on firm prosocial behavior suggests competing narratives about the human capital value of prosocial initiatives like philanthropy and thus it is unclear how firms can engage with such initiatives to best motivate employees. On one hand, studies have found that prosocial initiatives may increase employee willingness to exert more effort for the same level of compensation (Burbano 2016, Flammer 2015, Flammer and Kacperczyk 2016, 2019, Gubler et al. 2018). The studies report, for instance, that providing information on corporate philanthropy to workers in their samples is associated with a 13% rise in worker productivity (Tonin and Vlassopoulos 2015) and up to 44% lower wage requirements (Burbano 2016).

On the other hand, other work questions whether company philanthropy yields meaningful human-capital benefits and even suggests that philanthropy backfires. For example, in one study, workers' effort decreased by 8% when they had information on their firms' philanthropy (Cassar and Meier 2021). In another, 24% more employees shirked on their primary job duties after corporate philanthropy was introduced (List and Momeni 2021). Taken together, the evidence regarding the relation between corporate philanthropy and labor productivity is equivocal.

We argue that a way to make sense of these inconsistent results is by empirically accounting for differences in the types of their philanthropic programs. So far, studies using employee-related data have largely focused on comparing firms that engage in philanthropy with those that do not (Burbano 2016, 2019, Cassar and Meier 2018, Jones et al. 2014). While some studies use the name of nonprofit organizations as hypothetical charity recipients (e.g., The Red Cross, The Global Hunger Project in Burbano 2016, 2019), they do not explore the link to the target area or cause (e.g., poverty alleviation or disaster recovery). This is important because studies have documented that the philanthropic causes a company supports have implications for how external stakeholders assess and respond to donations (Bertrand et al. 2020, Cuypers et al. 2016, Seo et al. 2021). A similar dynamic may apply to internal stakeholders, i.e., the employees.

To better understand how employees respond to corporate philanthropy, we turn to experimental evidence on philanthropy in social psychology and its theoretical underpinnings. This research documents that individuals display greater sympathy and philanthropic giving toward victims of sudden welfare losses—such as those inflicted by disasters—than toward victims of chronic conditions—such as poverty (Small 2010). These findings align with statistics at the international level showing that individual charity is largely explained by phenomena like natural disasters and terrorist attacks and less by chronic misfortunes such as homelessness (Small 2010, Spence 2006). Taken together, this information suggests that the strength and direction of the relation between philanthropy and labor productivity could be a function of the type of cause that a company supports, particularly whether companies support restitution after welfare loses or improvement of chronic conditions.

Building on this argument, we conduct an *inductive* study of whether increases in labor productivity follow from corporate philanthropy and whether they vary based on the societal causes to which firms donate. Our inductive approach is similar to recent research in strategic management using large datasets to infer causality (e.g., Dushnitsky et al. 2022, Lyngsie and Foss 2017, Vakili and Zhang 2018) used when existing research suggests an "orienting position," but systematic evaluation is needed to develop a theorization of underlying mechanisms (Bettis et al. 2014).

For this purpose, we track the company philanthropy of U.S. firms from 2007 to 2020. Our data cover all reported in-kind and cash donations and allow us to define a precise categorization of philanthropic causes and apply different strategies for causal inference and testing of mechanisms. To categorize philanthropic causes, we draw our orienting position from social psychology to identify company donations targeting victims of sudden welfare losses (that we term *welfare-shock philanthropy*) and those targeting victims affected by chronic conditions to enhance their welfare (termed *chronic-conditions philanthropy*).

Our preferred method is a difference-in-differences design run after matching companies that engage in welfare-shock philanthropy (the treatment group) with similar firms donating toward chronic-conditions philanthropy (the control group). To conduct the matching, we use an algorithm with variables that the literature on nonmarket strategy has found to impact philanthropy and its correlation with firm performance. Our analyses consider firms that report both types of philanthropy and those that do not engage in any form of philanthropy in a given year. We use a combination of single and pair fixed effects and time-varying controls to account for the role of confounders associated with the characteristics of the donor company, the beneficiary community, the donation (including size and media coverage), and the context.

The difference-in-differences estimates suggest that welfare-shock philanthropy results in economically substantial increases in labor productivity. These increases are, on average, 6.63% larger than when the firm engages only in chronic-conditions philanthropy and 4.82% than when firms use a combination of philanthropic types in a given year. Conversely, the difference in postphilanthropy labor productivity between donors and non-donors is not sizeable, which renders additional evidence suggesting that empirically accounting for the type of company philanthropy can contribute to better understand its firm-specific implications. These results survive a battery of robustness tests.

Evidence from an online experiment will be used to further support our arguments. In the experiment, we randomly assign participants to a hypothetical employer that engaged in: 1) no philanthropy, 2) chronic-condition philanthropy, or 3) welfare-shock philanthropy. We then observe how many reference formatting tasks the participants are willing to complete above the required three texts (up to six tests). We are in the process of running the experiment, have IRB approval and have run a pilot showing promising trends that align with our archival data. We will have full experimental results by the time of the ARCS conference and believe that the experimental portion of the paper will lend additional support to the idea that welfare-shock philanthropy yields greater productivity than chronic-condition philanthropy (and greater than no philanthropy).

This study extends the literature on nonmarket strategy. To date, we have lacked clear information about the association between philanthropy and labor productivity. We add a more nuanced understanding of this relation by showing that the target of philanthropy is highly consequential for the magnitude of any potential labor benefit for the firm. The results also hold practical significance for leaders who allocate scarce philanthropic resources.

2. Conceptual backdrop: Firm prosocial behavior and labor productivity

A key reason why firms engage in prosocial behavior is to improve strategic human capital outcomes, particularly labor productivity (Flammer & Luo, 2016). Given that labor productivity is predicated upon strong human capital, firms should be able to obtain improved labor productivity if prosocial behavior provides competitive advantages in attracting, motivating, and retaining human capital. Here, we review what is known about the relationship between a firm's engagement in prosocial initiatives, human capital outcomes, and labor productivity.

2.1 Nonpecuniary incentives and human capital outcomes

An expanding body of studies seeks to understand whether firm's environmental and social initiatives function as a nonpecuniary incentive for employees (Burbano, 2016; Farooq et al., 2017; Flammer, 2015; Flammer & Luo, 2016; Gubler et al., 2018; Turban & Greening, 1997).

Several studies point to the positive effect of firm prosocial behavior on a firm's ability to attract, motivate, and retain workers. For instance, studies indicate that the likelihood of employees, particularly highly educated employees (Wilmers & Zhang, 2022), accepting relatively low wages increases when the firm shows a prosocial commitment (Burbano, 2016). For example, Burbano (2016) experimentally manipulated whether companies provided information about their philanthropy or not, finding that workers were willing to accept 44% lower wages in order to work for companies that provided information about their donations. Similarly, Jones and colleagues (2014), experimentally manipulate whether job postings advertised philanthropic giving or not, finding that organizations were seen as more attractive when they provided information on philanthropy. Bode and colleagues (2015) find that offering employees the chance to engage in social impact projects significantly improves the retention likelihood of participating employees (see also, Carnahan et al., 2017). Benefits of firm prosocial behavior may even extend beyond the point of employment. Flammer and Kacperczyk (2019) find that after employees leave, they are less likely to leak the company's proprietary knowledge to their new employer when their prior employer has prosocial initiatives. The underlying line of reasoning in the above studies is that firm prosocial behavior enhances employee satisfaction, engagement, meaningfulness, and identification, which in turn leads to improved human capital outcomes.

It is important to note that while the above studies largely suggest positive human capital outcomes, other research suggests prosocial initiatives can demotivate employees as well. Burbano (2021), for example, finds that companies which take a stand on a given sociopolitical issue may demotivate employees who do not agree with such a stance while also failing to motivate the employees that do agree. Moreover, List and Momeni (2021) manipulate whether workers were exposed to information about corporate philanthropy or not. They find information on corporate philanthropy, vis-à-vis no information, increases the propensity to cheat (shirk on the job task) by 24%. As such, it is not entirely clear when prosocial initiatives, including philanthropy, function as a nonpecuniary incentive.

2.2 Firm prosocial behavior and labor productivity

Of growing interest is how corporate prosocial behavior influences labor productivity (Cassar & Meier, 2018; Flammer, 2015; Gubler et al., 2018; Stuebs & Sun, 2010). Scholars have studied this relation with both large-scale firm-level administrative data as well as experimental and single firm case studies. Note that in experimental studies, productivity is often measured by looking at individual productivity outputs such as the number of slogans created or the number of references formatted (e.g., Cassar & Meier, 2021; Tonin & Vlassopoulos, 2015). In studies using administrative data, the standard operationalization of labor productivity is the ratio of sales to the number of employees (e.g., Delmas & Pekovic, 2013; Flammer, 2015).

Studies that adopt an experimental approach typically manipulate whether a potential employer enacts prosocial initiatives or not. For example, Tonin and Vlassopoulos (2015) recruited student subjects to enter bibliographic records into a database with payment provided per correct entry in order to test the productivity effects of differing types of associated charitable donations (e.g., lump-sum or based on performance). Overall, they find that the regardless of the specific form of donation, there was a statistically significant productivity increase of 13% more completed correct records when charitable donations were present. However, high-productivity subjects showed no productivity gains. Other studies suggest that prosocial initiatives can negatively impact individual productivity. Cassar and Meier (2021) worked with a firm to hire workers on M-Turk to create three product taglines, varying whether there was a monetary bonus, charitable donations, or no extra incentive for creating additional taglines. While monetary bonuses increased the proportion of workers completing more than three taglines by up to 23%, charitable donations decreased the proportion of workers completing more than three taglines by up to 12%. Gubler and colleagues (2018) take a different approach to studying this relationship, looking at the efficiency outcomes of a laundry firm's enactment of a wellness program, a type of employee-oriented prosocial initiative, among 111 full-time employees. Workers who complied with the wellness increased their individual productivity (measured in relation to laundry-related tasks like garment pressing rates) by 4% (the equivalent of working about one extra hour per month). Together, studies on individual productivity outcomes of prosocial initiatives paint an unclear picture.

While some cross-firm studies suggest a positive relation between prosocial initiatives and labor productivity, overall, the relation is equivocal in these studies as well. For example, Flammer and Kacperczyk (2016) suggest that when firms pay greater attention to nonfinancial stakeholders, they foster greater employee productivity. They construct a productivity variable of the patents per employee and citations per employee and find that both increase after constituency statutes pass which allow firms to consider a broad range of stakeholder interest (e.g., the environment, the local community) when running the firm. Other studies point to more varied results. Flammer (2015), for example, finds that employee productivity increases after firms vote in favor of new socially responsible proposals when those proposals are "close calls." While these results suggest that labor productivity improves after the passing of prosocial proposals that are nearly rejected (i.e., a close call), they do not necessarily suggest that all prosocial proposals enhance labor productivity. Delmas & Pekovic (2013) find that employee productivity is greater in firms that have adopted pro-environmental standards compared to those that have not. Yet, other work suggests the relation between pro-environmental standards and labor productivity is moderated by degree of capital intensity, such that the impact becomes negative in cases of high capital intensity (Lannelongue et al., 2017). Konrad & Mangel (2000) find that the productivity benefits of enacting work-life balance programs, an employee-focused prosocial initiative, are contingent on the type of worker employed by the firm. Specifically, they find greater work-life initiatives are associated with enhanced productivity at firms with more professional employees (i.e., highly-skilled, autonomous, and highly-paid) and women. Using a media-based measure of firms' environmental and social initiatives, of Barrymore and Sampson (2021) find that there is significant variation in whether such initiatives are associated with greater labor productivity. That is, they find greater prosocial orientations are associated with increased labor productivity in some cases while in others prosocial orientations are associated with reduced labor productivity – both across and within industries.

Overall, as an emerging area for systematic evaluation, we still know little about how or when firm prosocial behavior results in sizeable labor productivity outcomes. A more nuanced approach that accounts for the impact of different aspects of prosocial initiatives could shed light on whether and when there is a positive association between such initiatives and labor productivity.

2.3 Motivating an investigation of corporate philanthropy and labor productivity

In this paper, we specifically focus on developing a more nuanced approach to understanding the relation between corporate philanthropy and labor productivity. Philanthropy is the most frequently used form of firm prosocial behavior with far-reaching and varied firm consequences (Brammer & Millington, 2008; Cuypers et al., 2016; Lev et al., 2010; Seo et al., 2021; Wang et al., 2008; Wang & Qian, 2011). Yet, it remains unclear whether philanthropy is most likely to enhance labor productivity. As mentioned above, initial experimental evidence on individual productivity outcomes following from corporate philanthropy has yielded mixed results (Cassar & Meier, 2021; Tonin & Vlassopoulos, 2015). To the best of our knowledge, we are not aware of firm-level studies exploring this relation.

A more nuanced approach would account for the impact of different philanthropic causes on labor productivity. Thus, we believe the nonmarket strategy literature could benefit from a comprehensive inductive study that both documents the types of philanthropy undertaken by companies and the subsequent labor productivity implications.

We draw our classification of different philanthropic causes from social psychology research that emphasizes the key difference between philanthropy that supports welfare recovery after loss (e.g., natural disaster) and philanthropy that supports welfare enhancement from a steady state of chronically low-welfare (e.g., poverty) (Small, 2010). This line of research suggests people prefer to donate toward victims of loss than those affected by chronic conditions because they are averse to the losses of others (Small 2010, Sudhir et al. 2016). This research argues that sympathy is reference dependent (Small 2010), mirroring the argument of prospect theory that individuals respond more strongly to losses from a given reference point than to equivalent gains (Kahneman and Tversky 1979, Tversky and Kahneman 1991). That is, aversion to loss carries over into the charitable realm such that people are more averse to the welfare losses compared to beneficiaries' previous welfare state than to the welfare gains of others. It is plausible that this mechanism can be extended to individuals' preferences of their firms' philanthropic programs. The sudden welfare losses of others may inspire greater sympathy among employees than the welfare gains of others, suggesting that as a result, employees are more satisfied at work and willing to exert greater effort when their firms support causes that address welfare shocks.

We emphasize that the goal of our study is not to specify the exact mechanism that explains labor productivity outcomes but to consider the impact of different types of philanthropy on labor productivity.

3. Data

The starting point for our sample is the 500 largest U.S. publicly traded companies by revenue in 2019. We draw complete administrative data from 2007 to 2019 from Orbis published by Bureau van Dijk. Estimates suggest that these companies account for over 90% of the magnitude of company philanthropy worldwide (Ballesteros and Magelssen 2020).

3.1. Labor Productivity

Our operationalization of marginal *labor productivity*, the outcome variable, is the ratio of revenue to the number of employees. We regress *ln(1+ labor productivity)*. While this is an imperfect measure of labor productivity, this operationalization continues to be the best practice for firm-level administrative data and is ubiquitous across a wide range of literatures (Foster et al. 2008, Kline et al. 2019, Koch and Mcgrath 1996), including research documenting how labor productivity changes after firm prosocial behavior (Delmas and Pekovic 2013, Flammer 2015).

3.2. Types of Philanthropy

Our main measure of corporate philanthropy is a categorical variable that groups companies into non-donors, donors to negative welfare shocks, and donors to chronic conditions each year. To achieve cleaner causal inference of the effect of each philanthropic target, we separate the analysis to firm-years in which a company only engaged in one type of philanthropy and those when the firm donated to both welfare loss and chronic conditions. To ensure that the donations are large, substantial donations that are most likely to garner employee attention, we condition the data to a minimum of $1 million by grant (see, for example, Hornstein and Zhao 2018). The average single donation amount to either type of philanthropy of nearly $5 million and a standard deviation of $4.7 million analyses of these observations).

To classify firms as donors towards *welfare shocks*, we start by identifying shocks that generate substantial drops in welfare, namely large epidemics, natural disasters, and terrorist attacks (Baker and Bloom 2013, Barro 2007). To ensure the loss is sudden and not chronic (Small 2010), we include shocks in which the peak magnitude occurs within 30 days of its start date. There is a total of 232 welfare-shock events in the studied period. Data on philanthropy to welfare shocks comes from the Global Database of Disaster Responses (GDDR), which tracks all the reported cash and in-kind donations from organizations worldwide to major shocks since 1990 (for more information see the Appendix). Our welfare-shock philanthropy includes, for example, a 2018 donation of $1 million made by American Airlines to Hurricane Florence relief efforts and a 2017 donation of $2 million made by Alphabet to relief efforts in the US after a tropical cyclone. We identify 1,950 such donations made towards welfare shocks in our sample

To classify firms as donors towards *chronic conditions*, we use donation data from the U.S. Internal Revenue Service (IRS) housed by the Foundation Center. The Foundation Center applies the National Taxonomy of Exempt Entities (NTEE) from the IRS to classify donations into different nonprofit sectors. We find 14 NTEE sectors oriented towards chronic social welfare issues, with 182 possible year-sectors in which firms could donate.[1] Donations to nonprofits that improve education (35.90%), such as The National Dropout Prevention Network, health (14.33%), such as the Children's Miracle Network Hospitals, and community development (13.28%), such as the Local Initiatives Support Corporation account for 63.51% of the donations towards chronic needs. We identify 3,050 donations made towards chronic conditions in our sample

4. Methods

We begin by showing the correlations between each type of philanthropy and labor productivity using archival data.

Our most stringent OLS specification has the form:

[1] The 14 nonprofit sectors related to social welfare enhancement: B Educational Institutions, E Health—General & Rehabilitative, F Mental, G Disease, Disorders, Medical Disciplines, H Medical Research, I Crime, Legal Related, J Employment, Job Related, K Agriculture, Food, Nutrition, L Housing, Shelter, O Youth Development, P Human Services, R Civil Rights, Social Action, Advocacy, S Community Improvement, Capacity Building, W Public, Society Benefit. For a similar classification of welfare-oriented nonprofits, see Marquis, Davis, and Glynn (2013).

$$\ln(1+\text{labor productivity}_{ft+1}) = \beta_0 + \beta_1(\text{welfare-restitution philanthropy}_{ft}) + \beta_2(\text{welfare-enhacement philanthropy}_{ft}) + \beta_{3,4,5,6,7}(\text{time-varying covariates})_{fbs} + \mu_f + \kappa_i + \rho_s + \upsilon_t + \gamma_{fb} + \delta_{fs} + \varepsilon_{fbsit} \quad (1)$$

where f is firm, i is industry, b is the beneficiary U.S. county (or the average values of target counties), s is the sector or event, and t is year. We lag the predictors to the previous year to ensure that donations occurred before the reported labor productivity, consistent with prior research exploring the effects of corporate philanthropy (e.g., Cuypers et al. 2016, Wang and Qian 2011).

4.1. Treatment-Control Construction and Effect Identification by Philanthropic Type

Our primary estimation applies difference-in-differences on a sample that matches treated companies, those with a specific type of philanthropy, with control companies, those that use a different type of philanthropy or do not make donations in a given year. Estimating the causal impact of each type of philanthropy on labor productivity requires finding credible comparison groups to serve as counterfactuals for the financial statement of companies that either engage in a different philanthropic giving or do not donate. Finding such counterfactuals is complex given the uniqueness of the firm- and context-level factors that explain revenue and employment over time.

First, we produce matched comparison exercises where the treatment group is donors to negative welfare shocks and the control groups are either donors to chronic welfare needs or non-donors. We construct a panel of firm financials spanning 2007 to 2019 and then apply inverse propensity score weighting (Hirano et al. 2003) with a vector of company characteristics including revenue, employees, return on assets (ROA), Tobins' q, total assets, R&D intensity, advertising and administrative expenses, consumer orientation[2], and industry. We choose this technique

[2] Consumer orientation is a binary variable that takes value '1' if the company's main activity is distributing goods directly to consumers and '0' if the firm supplies to other companies.

because propensity score weighting considers the full sample as a pool of controls instead of a one-to-one match, which increases statistical power. Our specification restricts to firms whose scores lie inside the range of propensity scores, the *common support*. After finding suitable matches, we run differences-in-differences specifications of the following form:

$$\ln(1+\text{labor productivity}_{ft+1}) = \beta_{0=t0} + \beta_1(t0.T) + \mu_f + \kappa_i + \rho_s + \upsilon_t + \varepsilon_{fbsit} \tag{2}$$

4.3. Time-Varying Controls

We seek to control for time-varying factors that can potentially affect both labor productivity (Alfaro and Chen 2018, Bartelsman and Wolf 2014, Bloom et al. 2018, Serpa and Krishnan 2018) and the performance implications of company philanthropy productivity (Flammer and Luo 2016, Gubler et al. 2018, Lee et al. 2020, Lins et al. 2017, Tonin and Vlassopoulos 2015).

To approximate firm performance and size, which may affect a firm's capacity to donate, we control for the natural logarithm of *market capitalization* and *capital*. We also include measures of research and development intensity (*R&D*) and *advertising and administration* expenditures (logged), as these may determine intangible resources—such as cognition, reputation, and visibility—that can influence a firm's capacity to obtain increased productivity from philanthropy. Since Orbis has missing data in some of these variables, we test the existence of missing patterns and cannot reject the hypothesis that these data are missing completely at random. We thus apply a multiple-input bootstrapping algorithm for time-series-cross-sectional data as explained by Blackwell et al. (2017).

We further control separately for the *media publicity* that each donation attracted because media attention affects the level of awareness that employees have about their company's action and, in turn, explains their willingness to increase effort (Gubler et al. 2018, Servaes and Tamayo 2013). To collect these data, we run automated searches in Python that collect the frequency of news reports using Factiva and Google. The search covers three months before and one year after the donation. Moreover, because it is likely that the marginal effect of philanthropy on productivity follows a monotonically decreasing trajectory, we include the count of donations that the company made within the year before the focal donation; we term this variable *donor fatigue*. To explore the possibility that *company reputation* sufficiently explains variance in the performance value of philanthropy, we calculate a Janis-Fadner coefficient of imbalance (see Zhang 2016 for a review of this measure).

Extant work suggests that certain factors of a beneficiary's locale are relevant for motivating philanthropy (Ballesteros and Gatignon 2019, Hornstein and Zhao 2018) and the institutional structure underlying the firm's ability to benefit from its donations (Ballesteros and Magelssen 2020, Bertrand et al. 2020, Dorobantu et al. 2017). Accordingly, we account for county-level sociodemographic and economic administrative data from the U.S. Census Bureau and the American Community Survey. We control for education attainment, race and ethnicity, (un)employment, population size, gender composition, GDP and average income and earnings. We also code the level of urbanization of each county using data from the Economic Research Service (ERS) at the U.S. Department of Agriculture. In the case that donation benefited more than one county, we average the statistics of all the relevant counties.

It is also possible that characteristics of the social influence the level of employee's response to the firm's donation. We thus account for the number of beneficiaries or victims and the magnitude of the economic need from the GDDR database, the reinsurance company Swiss Re, and Foundation Center. Complete summary statistics are presented in Table 1.

[INSERT Table 1 ABOUT HERE]

4.4. Firm, Industry, Beneficiary County, and Nonprofit Sector Fixed Effects

There are several potential determinants of labor productivity that may include a preference for specific philanthropic programs, the targeted societal cause, and geographic areas. We control for this using two joint fixed effects.

First, certain companies may self-select into cities with different likelihoods to attract donations. Consequently, firms with a similar level of labor productivity may be comparatively prone to engage in a specific giving programs or target communities that systematically correlate with the employees' interests. The inclusion of Firm × Beneficiary County fixed effects accounts for the possibility, that, as a target community is economically important for the firm, it will be more likely to receive donations that motivate employees. For instance, companies are likely to donate in geographical markets that substantially explain their performance (Ballesteros and Magelssen 2020). Employees with higher or lower labor productivity may have altruistic motivations or other social preferences toward these communities (Andreoni 2006, Fehr and Fischbacher 2002). This could lead to a positive coefficient of donations even in the absence of a causal nexus between philanthropy and labor productivity.

Second, the inclusion of Firm × Nonprofit Sector (or event) fixed effects responds to the information that some specific societal areas or events have heterogenous impacts on specific companies and their employees. For instance, a pharmaceutical company may be comparatively likely to donate to sector E, Health; food companies to sector K, Agriculture, Food, Nutrition; and construction companies to sector L, Housing, Shelter. The development of these sectors may have performance value for these companies and result in unobserved heterogeneity that affects the size of the effects of philanthropy on productivity. These relations are likely to fluctuate across combinations of firms and sector. Similarly, firms with specific structures and abilities for internal communication may self-select into philanthropic causes. If, for example, some companies tend to use more efficient information channels to communicate disaster donations than donations toward chronic conditions, this may explain difference in coefficients.

Although including the two joint fixed effects help mitigate endogeneity concerns, they are highly restrictive because they absorb a substantial portion of the general variance in our studied relation. One may argue that any differences in the effects of the type of philanthropic program on labor productivity cannot be understood with static characteristics of the target beneficiary and nonprofit sector. Consequently, with the goal of achieving a balance between credible identification and relevant heterogeneity, we also report specifications with individual fixed effects.

5. Results

5.1 Results for Baseline Specification

Table 2 shows the association between the engagement in the type of philanthropy, with no donation being the baseline category, and marginal labor productivity. The partial models, available in the online Appendix, show coefficients that are economically substantial, and they survive the integration of controls. Overall, the higher increase in labor productivity for cases of firms that donate to negative welfare shocks vis-à-vis firms that donate to chronic conditions ranges from 12 to 78 percentage points. Controlling for Firm × Beneficiary and Firm × Nonprofit Sector fixed effects, plus separate industry and time fixed effects, and the vector of time-varying covariates, donors to welfare shocks are likely to observe increases of 3.8% in labor productivity, on average. In this most stringent specification, the effect of philanthropy towards chronic conditions is not sizable.

5.2. Results for Treatment-Control Specification

The differences-in-differences estimates show similar patterns, displayed in Table 3. The results for Model 1 indicate that philanthropy towards welfare shocks is associated with average differences in labor productivity of 7.54% when compared with counterfactual cases with no philanthropic giving. The results for Model 2 show that donations towards welfare shocks are associated with 6.63% greater increases in marginal labor productivity when compared with cases of firms supporting chronic conditions. For the case when the firm donates to both types of philanthropy in the same comparison year, the estimated effect in labor productivity is 4.82% lower than when it only makes shock-related donations.

[INSERT Tables 2 and 3 ABOUT HERE]

6. Robustness

We perform several robustness checks for our main specification. First, we explore whether the significance of the effect depends on how much the firm donates. We construct a continuous predictor, $ln(1+ \ donation \ amount_{ft})$ for each type of philanthropy in a given firm-year.[3] For donations towards chronic conditions, we also calculate donation subtotals for each of the 14 NTEE sectors. Table 1 in the Appendix shows qualitatively similar results that philanthropic support of welfare loss yields substantially greater effects on labor productivity than support of chronic needs.

Given the proportion of zero donation amounts is large across time, we account for the concern that the results are sensitive to the operationalization of the continuous predictor by adding 0.01 or 0.1 to donation amounts (instead of 1) before log transforming the variable. We find that the results are robust to rescaling (Online Appendix Table 2). Separately, we run models with the square of $ln(1+ \ donation \ amount_{ft})$ to evaluate nonlinearities. Although we find a degree of concavity for both types of philanthropy, in unreported results, we observe that the information regarding the stronger positive effect of philanthropy towards welfare loss remains intact. We run an additional test of the effect of large donors by winsorizing at the highest five percent of values in the complete sample of donations. The results in these panels are similar to our main inference (Appendix Table 3).

By themselves, the evidence in these tests have important implications for the understanding of the strategic value of corporate philanthropy. Past studies suggest that the financial benefits for the firm rise in donation amounts (Madsen and Rodgers 2015). Our opposite findings that firms accrue benefits regardless of the magnitude of philanthropy align with experimental evidence (Small 2010, Tonin and Vlassopoulos 2015) and more contemporaneous archival-data work

[3] In-kind giving or donations reported in currencies other than U.S. dollar are converted using information from similar donations by other companies. In case that this information is not available, we use current prices in the locality of the target beneficiary. The procedural details are in the online Appendix at https://rb.gy/ortm0l.

(Ballesteros et al. 2018). There are two potential explanations for this difference. First, our dataset allows us to measure the distribution of outcomes across non-donors, a sample that often is missed in extant work, better mitigating selection bias. Second, the longitudinal nature of our dataset allows us to control for omitted-variable bias and address self-selection issues. Past work analyzes an event or a few events triggering company donations.

Finally, as additional validation of the isolation of effects of philanthropy on labor productivity, we drop all the cases for which we have information that the company implemented changes in management, technology, and organizational structure. For the first two sources of potential confounders, we run Boolean searches in Python using the full sample of companies. The search range was from 2005, two years before the observation period to 2019. We find 14 cases of companies that implemented innovations or changes to the production line and 19 cases of changes of CEO or executive-level managers that could have resulted in productivity changes. For the case of contaminating events that come from modifications of the organizational structure, we rely on Bureau van Dijk's Orbis to track changes in ownership percentage over between 2005 and 2019. We used information on subsidiary incorporation dates and legal changes from the Orbis database to code when subsidiaries entered or exited the multinational firm group. A total of 13 of the sample firms had mergers or acquisitions during our sample period. We obtain qualitatively similar results with the adjusted database (see Appendix Table N).

7. Experimental Evidence

We are conducting a preregistered, online experiment comprising 250 online participants per condition through an online market platform (preregistered at aspredicted.org, but full link not provided to maintain author anonymity until publishing). Participants are recruited to work for a hypothetical accounting company to complete a reference formatting task (for a similar set up, see: Tonin and Vlassopoulos 2015). All participants are given the same basic information about the company. The control group receives no reference to the company philanthropy. The chronic-condition group receives supplemental information describing a recent donation the company made to help people who have experienced health disabilities for their entire life such as someone who lacked the ability to walk their entire life (both philanthropy conditions build on Small, 2010). The welfare-shock group receives supplemental information describing a recent donation the company made after a devastating hurricane which caused people to experience new health disabilities, such as someone who recently lost the ability to walk.

After reading about the company, all participants receive the same information about the reference formatting task: “You can complete as many references as you like up to six (6), with a minimum of three (3). Once at least three references are completed, you will be paid the wage of \$3.00.” Following the design of Cassar and Meier (2021), we will calculate labor productivity by looking at the total number of references completed correctly.

The results of a pilot study with 100 participants across three conditions (control, chronic-conditions, and welfare-shock) align with our archival findings.

8. Discussion and Conclusion

Our inductive study contributes to the nonmarket strategy literature by documenting different types of philanthropy undertaken by companies and the subsequent labor productivity implications. Broadly, how firm engagement in prosocial behavior impacts labor productivity is an important concern of strategy scholarship (Burbano 2016, Flammer 2015, Flammer and

Kacperczyk 2016, 2019, Gubler et al. 2018). A growing group of studies has centered on the role of company philanthropy on labor outcomes (Burbano, 2016; Cassar & Meier, 2018; Tonin and Vlassopoulos 2015). To date, however, little had been known about the heterogenous nature of this relationship. Indeed, different studies offer conflicting results as to whether corporate philanthropy has a positive impact on productivity (Burbano 2016, 2019, Tonin and Vlassopoulos 2015), versus no significant impact or even negative impact on productivity (Cassar and Meier 2021, List and Momeni 2021). A first contribution of our study is to advance a more nuanced understanding of these issues by documenting *when* corporate philanthropy is most likely to yield strategic human capital benefits based on the types of societal causes supported. Using a longitudinal sample of U.S. firms, we present evidence that corporate giving towards negative welfare shocks (like the aftermath of natural disasters) yields greater increases in labor productivity compared to corporate donations towards chronic welfare needs (like poverty).

Second, through focusing on donations towards welfare-shocks and chronic-needs, we bring an important distinction in philanthropic causes originating in social psychology research to the context of corporate philanthropy. The distinction between whether causes that support victims of loss and causes that support victims experiencing chronic misfortune has been shown to influence where and why individual donate, with individuals exhibiting greater sympathy and donations for victims of sudden loss (Small 2010). By extending these insights to the organizational realm, our study brings together research streams on individual and corporate philanthropy that have existed separately to date and opens avenues for additional research drawing on the psychology of philanthropy.

Third, our study highlights the importance of considering variation in the type of prosocial activities undertaken by firms to more fully understand the role of such activities in shaping strategic outcomes. Existing research has documented that the specific societal causes firms support are consequential for the ways that external stakeholders respond to corporate philanthropy (Bertrand et al. 2020, Cuypers et al. 2016, Seo et al. 2021). We extend this research by showing that internal stakeholders (i.e., employees) also exhibit variation in their response to firm philanthropy based on the causes supported. Notably, counter to existing results in experimental research that suggest philanthropy results in improved labor productivity (Burbano 2016, Cassar and Meier 2018, Tonin and Vlassopoulos 2015), we do not find consistent evidence that philanthropy has a main effect on labor productivity with longitudinal administrative data without also considering the supported causes. Instead, our results suggest that the magnitude of the relation between corporate philanthropy and labor productivity depends on the specific social cause. Thus, we join scholars who move beyond the average relationship between philanthropy and firm outcomes in helping to better identify the heterogenous effects of corporate philanthropy (Cuypers et al. 2016, Wang et al. 2008, Wang and Qian 2011).

On a practical level, engaging in corporate philanthropy necessitates that companies and their leaders make decisions about which nonprofits to fund and how much support to provide. While firm leaders are accustomed to allocating resources, they have less expertise in the realm of allocating charitable resources. Our results suggest that to maximize labor productivity outcomes, firms would be wise to target philanthropy towards welfare loss restitution. Finally, we note that is not our intention to suggest that firms should abandon supporting chronic issues, as issues of poverty and homeless are important, pressing issues facing society. Still, taking our results together with related research (Ballesteros et al. 2017, Ballesteros and Magelssen 2020) supports the idea that firms may be uniquely positioned to address costly disasters that increasingly overwhelm governmental capacity and traditional relief efforts while also enhancing their own economic standing.

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Table 1. Descriptive Statistics

Variables	Observations	Mean	Standard Deviation	Min	Max
Panel A. Firm					
Labor Productivity	507	884.22	2,204.69	0	56,195.94
Market Capitalization (ln)	507	16.78	1.55	10.40	22.11
R&D Intensity	507	2.93	4.61	-0.20	45.38
Advertising and Admin Expenses (ln)	507	14.88	1.53	9.20	18.60
Return on Assets	507	4.27	5.63	-43.79	36.06
Tobin's q	507	0.86	0.97	0	11.44
Total Assets	507	16.78	1.56	10.40	22.11
Consumer Orientation	507	0.46	0.50	0	1
Donor fatigue	507	0.06	0.59	0	14
Reputation	507	0.09	0.36	-1	1
Panel B. Beneficiary County					
GDP (PPP current international) (ln)	136	15.09	1.38	19.10	30.60
Population (ln)	136	5.95	2.06	10.86	21.04
Urban population (% of total population)	136	73.92	23.43	10	100
Control of Corruption	136	1.07	0.89	-2	2
Panel C. Sector or Event					
Donation Publicity	414	1.80	2.01	0	13.29
Event Publicity	414	9.24	3.56	0	18.50
Number of Beneficiaries (ln)	414	4.64	4.55	0	18.26
Economic Need (ln)	414	3.89	3.84	0	12.25
Panel D. Firm-Sector					
Philanthropy (USD Million)	501,115	2.97	7.72	0	75.35
Welfare-shock donations (US Mill, donors)	1,950	9.18	4.07	.50	54.43
Chronic-conditions donations (US Mill, donors)	3,050	4.30	34.90	.10	1,140

Notes: Each subheading provides the level of aggregation of the data presented in that part of the table. Panel A provides summary statistics for our analyses based on the dataset of the 500 largest U.S. firms by revenue in 2019. Panel B provides statistics for the beneficiary county or counties of company philanthropy in the sample period 2007-2019. Panel C shows information on 414 potential donation events: including donations to 232 major welfare shocks (i.e., epidemics, natural disasters, and terrorist attacks) and 182 potential donations events to chronic conditions (i.e., the 14 identified NTEE nonprofit sectors). Panel D shows statistics for the independent variable. Welfare shock donations are towards the relief and recovery of the identified epidemics, natural disasters, and terrorist attacks. Chronic needs donations are directed towards at least one of the NTEE sectors. Please see the text for further details on variable definitions and construction.

Table 2. Type of Philanthropic Program and Labor of Productivity

	Labor Productivity (ln)			
Variables	(1)	(2)	(3)	(4)
Welfare-Shock Philanthropy	0.099***	0.055***	0.068***	0.038***
	(0.037)	(0.013)	(-0.004)	(0.002)
Chronic-Conditions Philanthropy	0.021*	0.037*	0.024**	0.027
	(0.012)	(0.021)	(0.011)	(0.497)
Controls				
Firm, Beneficiary County, and Nonprofit Sector Time-Varying Controls	YES	YES	YES	YES
Fixed Effects				
Firm	YES	NO	NO	NO
Industry	YES	YES	YES	YES
Beneficiary County	YES	NO	NO	NO
Nonprofit Sector	YES	NO	NO	NO
Year	YES	YES	YES	YES
Firm × Beneficiary County	NO	YES	NO	YES
Firm × Nonprofit Sector	NO	NO	YES	YES
Observations	209,898	204,708	209,898	204,708

Notes: This table reports regression estimates for the relation between the type of philanthropic program and labor productivity. Welfare-shock philanthropy is directed towards the relief and recovery of the identified epidemics, natural disasters, and terrorist attacks. Chronic-conditions philanthropy is directed towards at least one of the NTEE sectors related to societal welfare. Please see the text for further details on variable definitions and construction. The firm panel is the largest 500 U.S. companies by revenue in 2019. There are 414 potential donation episodes. The sample period is 2007-2019. Robust standard errors are clustered by company and reported in parentheses, indicating *** p<0.01, ** p<0.05, *p<0.10.

Table 3. Differences-in-Differences Estimates of the Effect of the Type of Philanthropic Program on Labor of Productivity

Variables	(1) **Treatment:** Welfare-Shock Philanthropy **Control:** No Philanthropy	(2) **Treatment:** Welfare-Shock Philanthropy **Control:** Chronic-Conditions Philanthropy	(2) **Treatment:** Welfare-Shock Philanthropy Control: Shock-Chronic Combined Philanthropy
Labor Productivity	0.075***	0.066***	0.048***
	(0.025)	(0.024)	(0.027)
Firm, Beneficiary County, and Nonprofit Sector Time-Varying Controls	YES	YES	YES
Firm, Industry, Beneficiary County, Nonprofit Sector Year- Fixed Effects	YES	YES	YES
Observations	204,708	204,708	204,708
R-squared	0.49	0.41	0.52

Notes: This table reports differences-in-differences estimates comparing the labor productivity of a treatment group and a control group. Treatment is donating toward the relief and recovery of shocks that created welfare losses. The control group in Model 1 are firms that do not donate to any philanthropic program in the comparison year. The control group in Model 2 are firms that donate toward improving chronic welfare needs according to the 14 NTEE sectors related to social welfare. The control group in Model 3 are firms that donation to both chronic-conditions and welfare-shock philanthropy in the same comparison year. Please see the text for further details on variable definitions and construction. The firm panel is the largest 500 U.S. companies by revenue in 2019. There are 414 potential donation episodes. The sample period is 2007-2019. Standard errors are clustered by company and reported in parentheses, indicating *** p<0.01, ** p<0.05, *p<0.10.