

Job Loss and Charitable Giving^{*}

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Abstract

This paper provides the first quasi-experimental evidence on the effect of job loss on charitable giving and on how this effect varies across charitable causes. I use Norwegian population-wide administrative data linking individual donation records from tax registries to a comprehensive employer-employee dataset. Leveraging mass layoffs for identification, I find that job loss persistently reduces both the likelihood of donating and the amount given. While the income loss remains stable over the years following displacement, the reduction in giving grows, reaching roughly twice the percentage decline in income after five years. The response is driven by donors who stop giving altogether, and is concentrated in donations to international aid organizations, while giving to religious congregations remains unaffected. These findings demonstrate that labor market shocks can have lasting negative spillovers on pro-social behavior.

Keywords: charitable giving; job displacement; mass layoffs; pro-social behavior.

JEL Classification: D12, D64, J63

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1 Introduction

A long-standing hypothesis in the social sciences holds that non-material preferences are higher-order concerns, luxuries individuals can afford only once more pressing material needs are met. As material security improves, these needs demand less attention and resources, allowing individuals to prioritize expressive, social and moral goals (Maslow, 1943; Inglehart, 1971; Enke, Polborn and Wu, 2025). Charitable giving offers a particularly direct behavioral test of this hypothesis, since it imposes a monetary cost in exchange for intangible benefits such as the satisfaction of altruistic preferences, the ‘warm glow’ of giving, or the maintenance of a positive social or self-image (Becker, 1974; Andreoni, 1990; Dana, Cain and Dawes, 2006; Dana, Weber and Kuang, 2007). If these benefits are higher-order concerns, donations should be among the first expenditures individuals cut following a negative economic shock. In practice, however, individuals contribute to a wide range of causes, from international aid to religious congregations, sports clubs and art galleries. Some of these contributions are more deeply tied to an individual’s identity, sense of social belonging or moral obligations, and so plausibly serve more fundamental purposes. The responsiveness of giving to economic shocks may therefore vary systematically across causes, and this variation is informative about the motives behind charitable giving.

In this paper, I study how job displacement affects individual charitable giving and how this response varies across types of charitable causes. A positive relationship between income and giving is well documented (Auten, Sieg and Clotfelter, 2002; Andreoni and Payne, 2013; Meer and Priday, 2021), but much less is known about how giving responds to adverse economic conditions. The existing evidence is also largely correlational, or relies on laboratory experiments where giving rates far exceed those observed in the field. Recent quasi-experimental work leverages lottery winnings to identify the causal effect of income and wealth on donations (Kotsadam and Somville, 2024; Geys and Sørensen, 2025), but these windfall studies capture how individuals allocate unearned surpluses, a setting where additional giving is financed by the prize itself. Negative shocks to earned income arguably provide a sharper test, as they force individuals to make trade-offs between donations and maintaining their other expenditures. Finally, existing research largely treats giving as an aggregate phenomenon, overlooking the possibility that donations to different causes fulfill distinct psychological or social roles and may therefore respond differently to the same shock.

To address these gaps, I link administrative data on the universe of tax-deductible donations in Norway over the 2004-2023 period to matched employer-employee records. Donations in my data are reported to the tax authorities by the recipient organizations rather than by the donors themselves, and are therefore not susceptible to the recall and social desirability biases that affect survey measures of giving. I estimate the effects of displacement using a combined matching and event study design that exploits firm-level mass layoffs as a source of plausibly exogenous variation in individual employment status. Because mass layoffs are driven by firm-level or macroeconomic conditions rather than individual performance, this

approach addresses the key concern that individual layoffs may be correlated with unobserved determinants of giving, and has been extensively used to analyze the consequences of job loss (e.g. Jacobson, LaLonde and Sullivan, 1993; Lachowska, Mas and Woodbury, 2020; Britto, Pinotti and Sampaio, 2022; Bhalotra et al., 2025). I compare displaced workers to a control group of similar workers who were not displaced in a mass layoff, matched on key pre-treatment characteristics including gender, age, tenure, previous earnings and donations, industry, and full-time status. In a second analysis, I exploit disaggregated data on each recipient organization’s purpose, available for all tax-deductible donations from 2012. With these data, I analyze how the response of giving to displacement varies across international, religious and other charitable causes.

The analyses yield three main findings. First, the reduction in charitable giving following job loss is disproportionately large and persistent. While total income drops by an estimated 7.1% in the first year after displacement, donations, while less precisely estimated, fall by around 8.7%, roughly one-for-one with income. For comparison, Andersen et al. (2023) estimate that Danish displaced workers reduce *overall* spending by only about 30% of the corresponding income loss, indicating that donations are cut disproportionately relative to other forms of consumption, in line with them serving higher-order needs.¹ Moreover, while income remains at 6.7% below its pre-displacement level five years after job loss, the estimated reduction in giving grows to 12.3%, indicating that the gap between the two widens over time.

Second, the decline in giving is primarily driven by the extensive margin. The probability of making a tax-deductible donation falls by an estimated 1.2 percentage points by year five, a reduction of around 10% relative to the pre-displacement donor rate of 12%. A back-of-the-envelope calculation attributes 81% of the total decline in giving to this margin. Rather than scaling back their contributions, a substantial share of displaced workers stop donating altogether, and workers who would otherwise start donating do not. Displaced workers thus appear to treat giving primarily as a decision about whether to give rather than how much.

Third, the response is concentrated in giving to international causes, while religious giving is left largely unaffected. Donations to international aid and development organizations fall on both margins from the first year after displacement, and the estimated effect grows over time. In the long run, the probability of giving drops by an estimated 1.0 percentage points, or 9% of the pre-displacement donor share, and the amount given falls by an estimated 56 NOK, or 14% of the pre-displacement average. Giving to religious congregations shows no significant response, with displaced workers maintaining their participation at pre-displacement rates. Giving to other causes, such as health, social and environmental organizations, declines modestly and only at longer horizons.

This paper contributes to several strands of literature. Most directly, it extends the large body of research on the consequences of job displacement, which has documented persistent

¹The pattern is also consistent with models of consumption commitments, in which committed expenditures such as housing are costly to adjust and income shocks are therefore absorbed disproportionately by the discretionary items in the budget (Chetty and Szeidl, 2016). My results place donations, on average, among these discretionary items.

effects on earnings (e.g. Jacobson, LaLonde and Sullivan, 1993; Lachowska, Mas and Woodbury, 2020; Bertheau et al., 2023), consumption (Andersen et al., 2023), health (Amorim et al., forthcoming), and social outcomes including crime (Britto, Pinotti and Sampaio, 2022), domestic violence (Bhalotra et al., 2025) and political behavior (Barros and Schmeißer, 2025). I extend this literature to the domain of pro-social behavior by showing that displacement reduces charitable giving, and that the reduction is persistent, disproportionate relative to the income loss and concentrated in specific causes. My findings thus suggest that mass layoffs affect not only the displaced workers themselves but also the communities and beneficiaries that rely on charitable funding.

Second, the paper contributes to the literature on the determinants of charitable giving (e.g. Fack and Landais, 2010; Andreoni and Payne, 2013; Meer and Priday, 2021) by providing quasi-experimental evidence on how giving responds to negative income shocks, complementing recent work on the effects of positive shocks (Kotsadam and Somville, 2024; Geys and Sørensen, 2025). The disproportionate response I document, with giving falling by more than the percentage of lost income and reaching roughly twice the income decline five years after displacement, suggests that donations occupy a particularly discretionary position in individuals' budgets. Benchmarked against the estimates in Geys and Sørensen (2025), who use the same Norwegian donation data to study the effects of lottery winnings, giving appears 8 to 13 times more responsive to earned income losses than to equivalent windfall gains. Part of this asymmetry likely reflects the persistence of displacement shocks relative to transitory lottery winnings, since standard consumption-smoothing logic predicts stronger responses to persistent changes in income. It is also consistent with reference-dependent preferences (Köszegi and Rabin, 2006), under which losses in income are felt more acutely than gains, and with differences in how individuals mentally account for earned versus unearned income (Arkes et al., 1994; Thaler, 1999). Regardless of the underlying mechanism, these findings suggest that estimates based on windfall gains alone may understate the vulnerability of charitable revenue to economic downturns.

Third, the paper's extensive margin results connect to an emerging literature on the formation and persistence of giving habits (Landry et al., 2010; Breman, 2011; Meer, 2013; Adena and Huck, 2019; Heger and Slonim, 2022). While much of this literature documents how initial acts of giving establish lasting donor habits, my results demonstrate that an external shock can permanently disrupt them. This has practical implications for charitable organizations, as it suggests that donors lost during economic downturns are not easily recovered.

Finally, by disaggregating giving by cause, the paper addresses a dimension of donation behavior that has received little attention in the literature (but see Ahn and Ren, 2024). To my knowledge, this paper is the first to estimate how the response of giving to an economic shock differs across charitable causes. Economic models typically treat charitable giving as homogeneous, but the sharp contrast between donations to international and religious organizations documented in this paper suggests that different forms of giving serve distinct roles for the donor. The finding that international aid is disproportionately cut when income falls, with

significant donor attrition, is consistent with these donations being relatively discretionary, directed toward distant beneficiaries with whom the donor has no direct social ties, in line with the view of universalist morality as a ‘luxury’ (Enke, Polborn and Wu, 2025). The resilience of religious giving, by contrast, is consistent with models emphasizing the club-good properties of religious organizations (Iannaccone, 1992; Berman, 2000) and their role as providers of informal social insurance (Chen, 2010). Religious giving thus behaves more like a consumption commitment, held in place by social ties and obligations rather than by the cost of adjusting the gift, which is negligible for all causes. Together, these patterns indicate that motives for giving vary across causes, a source of heterogeneity obscured by aggregate analyses.

2 Setting and data

In this section, I describe charitable giving and employment in Norway, and provide an overview of the data.

2.1 Charitable giving

Norway, like many Western democracies, subsidizes charitable giving through tax incentives. Norwegian taxpayers can claim income tax deductions for charitable donations under two separate schemes. The largest scheme, implemented in 2003, allows taxpayers to deduct donations to a set of pre-approved voluntary and religious organizations, provided annual donations to an organization total at least 500 NOK and subject to an overall annual cap. The cap has increased progressively over most of the study period, from 6,000 NOK in 2004 to 50,000 NOK in 2019, before being reduced to 25,000 NOK in 2021.² To qualify for the scheme, organizations must apply to the tax authorities and fulfill a set of criteria, including having a national or international scope and receiving government funding. In 2023, around 500 entities were included in the registry, covering the main voluntary and religious organizations in Norway.

The second scheme covers donations to scientific research. There is no minimum required amount, but deductions for contributions exceeding 10,000 NOK are limited to 10 percent of the taxpayer’s ordinary income. Organizational eligibility is similarly governed by a formal process through the tax authorities. Beneficiaries include universities, independent research institutions and museums, as well as a few NGOs such as the Norwegian Cancer Society and WWF, which are approved under both schemes.

The Norwegian tax system is highly automated, and claiming deductions requires little effort from the individual taxpayer. Recipient organizations are responsible for reporting donations directly to the tax authorities via digital reports. As a result, contributions are pre-registered on donors’ tax returns, provided their national identity number is shared with

²The specific upper limits were 6,000 NOK in 2004; 12,000 NOK between 2005 and 2013; 16,800 NOK in 2014; 20,000 NOK in 2015; 25,000 NOK in 2016; 30,000 NOK in 2017; 40,000 NOK in 2018; 50,000 NOK in 2019 and 2020; and 25,000 NOK from 2021 through 2023. The scheme does not cover membership fees or donations to political parties.

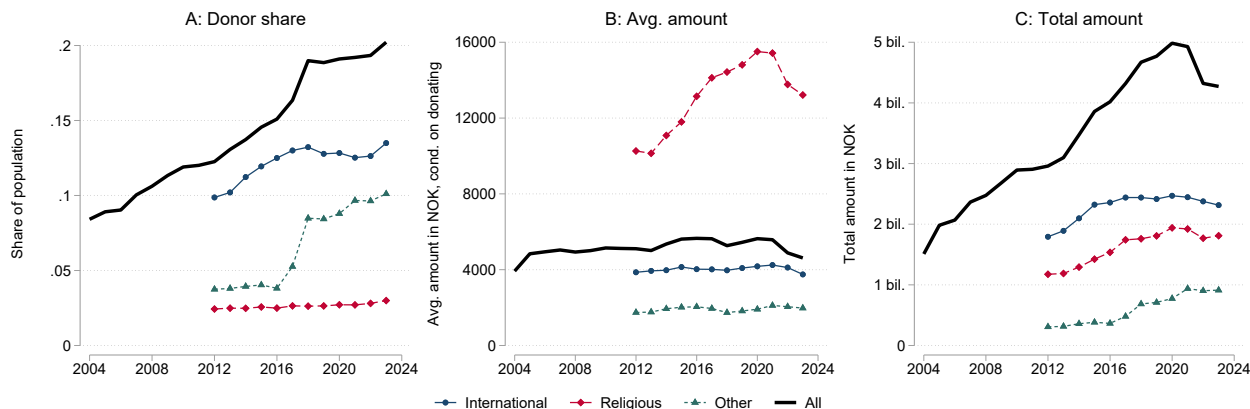
the organization. Norway publishes individuals' income, wealth and assessed tax in its public tax records, but not tax deductions. Donations are therefore visible only to the recipient organization and the tax authorities, and are not publicly observable. The relevant income tax rates were 28% between 2004 and 2013; 27% between 2014 and 2015; 25% in 2016; 24% in 2017; 23% in 2018; and 22% between 2019 and 2023, implying a net cost of 0.72 to 0.78 NOK for every 1 NOK donated. Importantly, donations do not affect marginal tax rates, which are calculated before applying deductions. The scheme is widely used, and anecdotal evidence suggests that tax-deducted donations represent a high share of private giving in Norway. For instance, in 2023, the Norwegian Red Cross reported 330 million NOK in private donations, of which around 75% were deducted. The corresponding figures for Jehovah's Witnesses and the Norwegian Air Ambulance Foundation are 62% and 87%, respectively.

Data on the universe of tax-deducted donations are available from 2004 to 2023 at the individual-year level, providing the total yearly amount donated by each individual. As depicted in Figure 1, the share of the population making a tax-deductible donation has increased steadily from 8.4% in 2004 to 20.2% in 2023. Institutional factors are likely to play some role in this upward trend. For instance, the transition from cash to digital payments has made it easier for organizations to recruit donors, while also simplifying the collection of national identity numbers required for tax reporting. Awareness of the deduction scheme has likely grown over time, and the increase in the maximum deduction cap described above has raised the return to larger donations. At the same time, the charitable sector has increasingly professionalized, with organizations adopting more sophisticated fundraising strategies, often involving paid staff and a focus on recurring, subscription-based donations (Arnesen and Sivesind, 2017). Consistent with this, Appendix Figure A.1 reveals that giving is highly persistent at the individual level. Around 89% of donors in a given year also donate the following year and 77% still donate five years later, while only 3% of non-donors start giving the following year and 8% have started after five years (Panel A). Among those who donate over two consecutive years, the amount given in one year also closely predicts the amount given in the next (Panel B).

From 2012, data are also available at the individual-year-organization level, recording the annual amount given by each individual to each organization. This dataset contains an anonymized identifier for each recipient organization, which I link to International Classification of Non-Profit Organizations (ICNPO) codes from the Norwegian Registry of Non-Profit Organizations. These codes describe the primary purpose of the organization, allowing me to categorize the donations by charitable cause. Appendix Figure A.2 presents the distribution of donations across ICNPO categories. I focus on the two major causes, international and religious, which account for 86% of total donation volume, as reported in Panel C. The remaining causes are aggregated into an 'other' category to ensure sufficient statistical power.

International causes are by far the most popular, accounting for a little less than 60% of all recorded donations and totaling around 28 billion NOK in the 2012-2023 period. As illustrated in Figure 1, between 10 and 14% of the population contributes to this category

Figure 1 – Donations over time.



Note: The figure displays the trajectories of donations to international, religious, other and all causes over time. Panel A plots the share of the population donating to each category; Panel B the average amount donated conditional on making a donation in that category; and Panel C the total donation amount. Donations are in 2023 NOK.

annually, with around 4,000 NOK (approx. \$400) on average. This category consists mostly of international aid and development organizations, with SOS Children’s Villages, Doctors Without Borders and Plan International serving as its three largest beneficiaries (Appendix Table A.1).

Religious causes represent a smaller but more intensive segment, with a donor share that has remained stable at 2-3%. While this participation rate is considerably lower than that of international causes, the average annual donation is substantially higher, increasing from a little over 10,000 NOK in 2012 to around 15,500 NOK in 2020, and falling to 13,000 NOK in 2023 (approx. \$1,300). The category primarily comprises Christian organizations. Notably, while over 60% of the population remain members of the Church of Norway (the former state church), it only ranks fifth in terms of donation volume. Large beneficiaries in this category are predominantly smaller, independent ‘free churches’ and missionary movements, some of which are known for their proactive fundraising practices. The top three recipients are the Pentecostal Movement (Protestant), the Brunstad Christian Church (Evangelical), and Normisjon (Lutheran mission).

Other causes include a broad range of domestic organizations, most notably those focused on health, social services, the environment, and civic advocacy, as illustrated in Appendix Figure A.2. Between 4% and 10% of the population contributed to this category annually during the 2012-2023 period. While it covers a broad segment of the non-profit sector, donors contribute smaller amounts (averaging between 1,700 and 2,100 NOK annually), resulting in lower overall funding compared to religious and international causes. The top three recipients are the Norwegian Air Ambulance Foundation, the Norwegian Association of the Blind and Partially Sighted, and the Church City Mission (see Appendix Table A.1).

Naturally, donors to different causes differ in their characteristics. As shown in Appendix Table A.2, donors (to any cause) are on average older, more educated, more likely to be female and have higher income than non-donors. Among donor groups, international donors have

the highest income and education levels, religious donors have the lowest income, and donors to other causes are the oldest.³ The cross-sectional relationship between giving and income also varies across causes, as depicted in Panel A of Appendix Figure A.3. The share donating to international causes rises sharply with income, from around 3% in the second lowest decile to 24% in the top, whereas participation in religious giving stays flat at around 3% above the bottom deciles, and the share donating to other causes lies between the two.⁴ Conditional on giving, the size of the contributions to international and other causes varies only modestly with income, while the average religious donation rises from around 8,000 NOK in the second decile to 17,000 NOK in the tenth (Panel B). Income thus predicts giving to international causes on the extensive margin and giving to religious causes on the intensive margin, in the cross-section.

2.2 Employment

Since the late 1990s, Norway has maintained a comparatively low and stable unemployment rate between 3 and 5%. The Norwegian labor market is characterized by a high degree of job security, strong unions, and extensive regulation through the Working Environment Act and numerous collective bargaining agreements. Permanent contracts are the statutory norm, but employers may use temporary contracts if the work is ‘temporary in nature’ or involves substitution for employees on leave.

Employment termination is strictly regulated. Employers must provide an objective (*‘saklig’*) justification for any dismissal, relating either to the firm’s operations (e.g., downsizing), or to the employee’s conduct or competence. Permanent layoffs legally require a minimum notice period of one month, though three months is the standard in most individual and collective agreements.

Temporary layoffs (*‘permittering’*) allow firms to suspend the employment relationship due to operational necessities, such as a decline in orders or necessary cost reductions, while the employment contract remains in force. These are primarily regulated by collective agreements rather than statutory law. The maximum duration of a temporary layoff is currently 26 weeks within an 18-month period. Employers must generally provide 14 days’ written notice, during which they remain responsible for wage payments before the responsibility shifts to the social security system.

Specific regulations apply to mass layoffs, defined legally as a permanent dismissal of more than 10 employees within a 30-day period, for reasons not related to the individual workers. In such cases, employers are obliged to consult with employee representatives to explore alternative solutions or mitigate the negative impacts of the layoffs. If no alternative is found, the employer must provide written notice to the employees and the Norwegian Labor

³The categories are not mutually exclusive as an individual can donate to multiple causes within a year.

⁴I interpret the figure from the second decile onward, as the bottom decile typically contains self-employed individuals and individuals with transitorily low income for which annual income understates their available resources (Brewer, Etheridge and O’Dea, 2017).

and Welfare Administration (NAV). The layoffs cannot take effect until at least 30 days after this notice.

In the event of unemployment, individuals may apply for benefits covering 62.4% of previous income, capped at six times the National Insurance Basic Amount (6G, around 712,000 NOK or approximately \$71,200 in 2023). The duration of benefits is either 52 or 104 weeks, depending on previous earnings.⁵ To remain eligible, recipients must be active job seekers and submit a bi-weekly status report to the authorities.

My main source of data on employment is a matched employer-employee dataset covering all Norwegian employment spells during the study period. These records contain key information such as employment start and end dates, occupation, working hours and earnings, alongside industry and sector codes for the employers. Employers are identified via unique codes at both the enterprise and establishment levels. I focus on the establishment level to capture the lowest organizational level where daily work is performed. These records are combined with data on annual labor earnings and total income from tax records.

Before 2015, employment data is derived from NAV’s Employer and Employee Register (*Aa-registeret*) linked with the Salary and Tax Deduction Register (*LTO*). After 2015, data are from *A-ordningen*, a coordinated monthly reporting system to tax authorities, NAV, and Statistics Norway. To ensure consistency across the data sources, I construct a balanced yearly panel by measuring employment status and firm characteristics in November of each year.

Total labor earnings are the sum of gross wages, taxable in-kind benefits, and sickness and parental benefits received within the calendar year, as reported in the annual tax records. Total income is the sum of earnings from employment and self-employment, capital income, and taxable and non-taxable transfers, including unemployment benefits and pensions. An individual’s employment status is determined via their earnings records. A worker is considered employed if they receive *any* positive labor earnings from any employer during the calendar year. As is standard in the job displacement literature, I set labor earnings and total income to zero for registered residents with no earnings or income recorded in the data.

3 Empirical strategy

The goal of the paper is to estimate the impact of economic distress on charitable behavior by studying individuals who are laid off from work in Norway. The primary challenge in this estimation is that individual layoffs are rarely exogenous. On the one hand, unobserved idiosyncratic shocks, such as a personal crisis, may simultaneously decrease worker productivity, thereby increasing the risk of layoff, and curb charitable donations. On the other hand, innate pro-sociality may be correlated with labor market outcomes. Employers may, for instance, value pro-social traits like cooperativeness as signals of worker quality (Heinz and Schumacher, 2017), rendering ‘charitable’ individuals less susceptible to job loss. This selection is further

⁵Eligibility for 104 weeks requires earnings exceeding 2G (around 237,000 NOK) in the previous calendar year or on average over the last three years; otherwise, duration is limited to 52 weeks.

complicated by the tendency for pro-social workers to sort into more secure jobs, such as those in the public sector (Tonin and Vlassopoulos, 2015; Burbano, Padilla and Meier, 2024).

To alleviate these concerns, I adopt a combined matching/event study design, and exploit firm-level mass layoffs as a source of plausibly exogenous variation in individual employment status. Since mass layoffs are arguably driven by macroeconomic or firm-level conditions rather than worker behavior, they have been used to study the effects of job loss on a wide range of outcomes (e.g. Jacobson, LaLonde and Sullivan, 1993; Lachowska, Mas and Woodbury, 2020; Andersen et al., 2023; Barros and Schmeißer, 2025; Bhalotra et al., 2025; Da Mata, Mattos and Vilarouca, 2025). In particular, my empirical strategy closely follows the design proposed in Bertheau et al. (2023), which provides a unified, ‘state-of-the-art’ framework aimed at addressing the considerable methodological heterogeneity in the existing literature.⁶

The remainder of this section details the sample selection criteria, treatment definition and the formal estimation model. Unless otherwise stated, I follow the definitions and specifications exactly as outlined in Bertheau et al. (2023).

3.1 Sample selection

I define t^* as the year in which the displacement occurs. The sample is restricted to workers who, in November of the year prior to the reference year ($t^* - 1$), meet the following criteria: they are between 20 and 50 years old; have at least three years of tenure with their main employer; work in the private sector; and are employed in an establishment with at least 50 employees.

Treatment group. The treatment group comprises workers displaced in a mass layoff event between 2007 and 2022.⁷ A worker is defined as treated (displaced) if they i) separate from their main employer between $t^* - 1$ and t^* , and ii) their main employer experiences a mass layoff in the same period. A mass layoff is defined as a drop in employment of at least 30% between $t^* - 1$ and t^* .⁸ To distinguish these separations from firm reorganizations or mergers, I exclude events where more than 20% of the separating workforce moves to the same new establishment identifier. With this definition, on average 2.18% of all workers in the sample are treated each year (Appendix Table A.3).

Control group. The pool of potential control workers consists of individuals who do not meet the two displacement criteria (conditions i and ii) in the same year. Control workers are thus restricted to those who are never treated themselves within the analysis window. They may, however, be employed at a mass layoff establishment, provided they do not themselves

⁶Bertheau et al. (2023) demonstrate that earnings loss estimates within single countries often vary substantially due to differences in sample selection criteria, definitions of the displacement event, and econometric specifications.

⁷The sample of displacement years starts in 2007 because the donation data are first available from 2004, and I require each worker to be observed for at least three years prior to displacement.

⁸While the 30% threshold is standard, several studies additionally impose some form of stability requirement prior to t^* to exclude employers that were already in decline (e.g. Davis et al., 2011; Lachowska, Mas and Woodbury, 2020; Schmieder, Von Wachter and Heining, 2023).

separate in the year of the mass layoff. Furthermore, unlike in some studies (e.g., Jacobson, LaLonde and Sullivan, 1993; Lachowska, Mas and Woodbury, 2020), control workers are not required to remain with their employer indefinitely; they are permitted to separate in years other than $t^* - 3$ to $t^* - 1$, provided the separation is not the result of a mass layoff. This avoids conditioning on future job stability and creating an overly selective control group of long-tenured ‘stayers’.

For each displacement year t^* , I employ a two-step matching procedure (Bertheau et al., 2023; Schmieder, Von Wachter and Heining, 2023). First, treated workers are exactly matched to potential controls on gender and a broad industry indicator (four categories). Second, within these cells, I estimate propensity scores using a probit model for the probability of displacement. The vector of covariates includes age and characteristics of the main employment spell: tenure, full-time status, industry (14 categories) and employer size, all measured in $t^* - 1$, as well as annual main employer earnings in $t^* - 2$ and $t^* - 3$. Crucially, to capture pre-existing preferences for charitable giving, I extend this specification by also including the workers’ total donation amounts in $t^* - 2$ and $t^* - 3$ in the propensity score estimation. Finally, I select the closest control worker for each treated worker using 1 : 1 nearest neighbor matching without replacement.

Appendix Table A.3 provides descriptive statistics for the matched sample. The matching algorithm produces well-balanced treated and control groups, with absolute standardized mean differences at or below 0.02 across all observable characteristics. The average worker in the sample is 36 years old with approximately 5.4 years of tenure, 32% of the sampled workers are female and 84% are employed in a full-time position. Average annual earnings are around 660,000 NOK, income around 700,000 NOK and donations around 590-600 NOK. The sampled workers’ donation behavior is broadly representative of national trends. As illustrated in Appendix Figure A.4, the donor share ranges from 8.6% to 18.0% over the sample period, closely tracking the 8.4% to 20.2% range observed in the general population. Average donation amounts are similarly comparable, with donors in both groups giving around 4,000-5,000 NOK annually. The distribution across causes is similar, although the sampled workers are slightly less likely than the population to donate to religious and other causes.

3.2 Estimation model

My main specification estimates the following event study model:

$$Y_{it} = \alpha_i + \lambda_t + \sum_{\substack{k=5 \\ k=-5, \\ k \neq -3}} \gamma_k \mathbb{I}\{t = t_i^* + k\} + \sum_{\substack{k=5 \\ k=-5, \\ k \neq -3}} \theta_k \mathbb{I}\{t = t_i^* + k\} \times Treat_i + \beta Age_{it}^2 + \varepsilon_{it} \quad (1)$$

where Y_{it} represents the outcome of interest (as specified in Section 2) for worker i in calendar year t . α_i and λ_t are worker fixed effects and calendar year fixed effects, respectively. t_i^* indicates the year of the displacement event, and k the number of years since displacement.

$Treat_i$ is a time-invariant indicator variable equal to 1 if the worker is in the treatment group (i.e. displaced in a mass layoff). Age_{it}^2 is a quadratic age term, and ε_{it} is an error term.⁹ The coefficients of interest, θ_k , capture the effect of job loss on charitable giving at event time k , and are normalized relative to θ_{-3} .¹⁰ Standard errors are clustered at the worker level.

Note that Equation (1) is estimated by comparing displaced workers only to never-treated matched controls. The estimator therefore avoids the ‘forbidden comparison’ and negative weighting issues that can bias two-way fixed-effects estimators under staggered treatment timing (de Chaisemartin and D’Haultfœuille, 2020; Goodman-Bacon, 2021). The dynamic coefficients can nonetheless be contaminated if treatment effects are heterogeneous across cohorts (Sun and Abraham, 2021). I demonstrate later that my results are robust to an estimator that allows for such heterogeneity.

4 Main results

4.1 Labor market outcomes

Before analyzing the effects of job loss on charitable giving, I document its impact on employment, earnings and income. This serves to validate the empirical strategy, quantify the magnitude of the economic shock, and benchmark the results against the cross-country evidence in Bertheau et al. (2023).

Figure 2 displays the event study estimates for employment, labor earnings and total income, with corresponding regression results in Columns 1 to 3 of Appendix Table A.4. The pre-displacement estimates are small and show no systematic trends for any of the three outcomes, supporting the parallel trends assumption underlying the event study design. Following displacement, workers experience an immediate and persistent employment penalty. The point estimate in Column 1 of Appendix Table A.4 implies that displaced workers are 3.5 percentage points less likely to be employed than comparable non-displaced workers one year after displacement ($t^* + 1$, $p < 0.01$), a gap that narrows only modestly to 3.2 percentage points by year five.¹¹

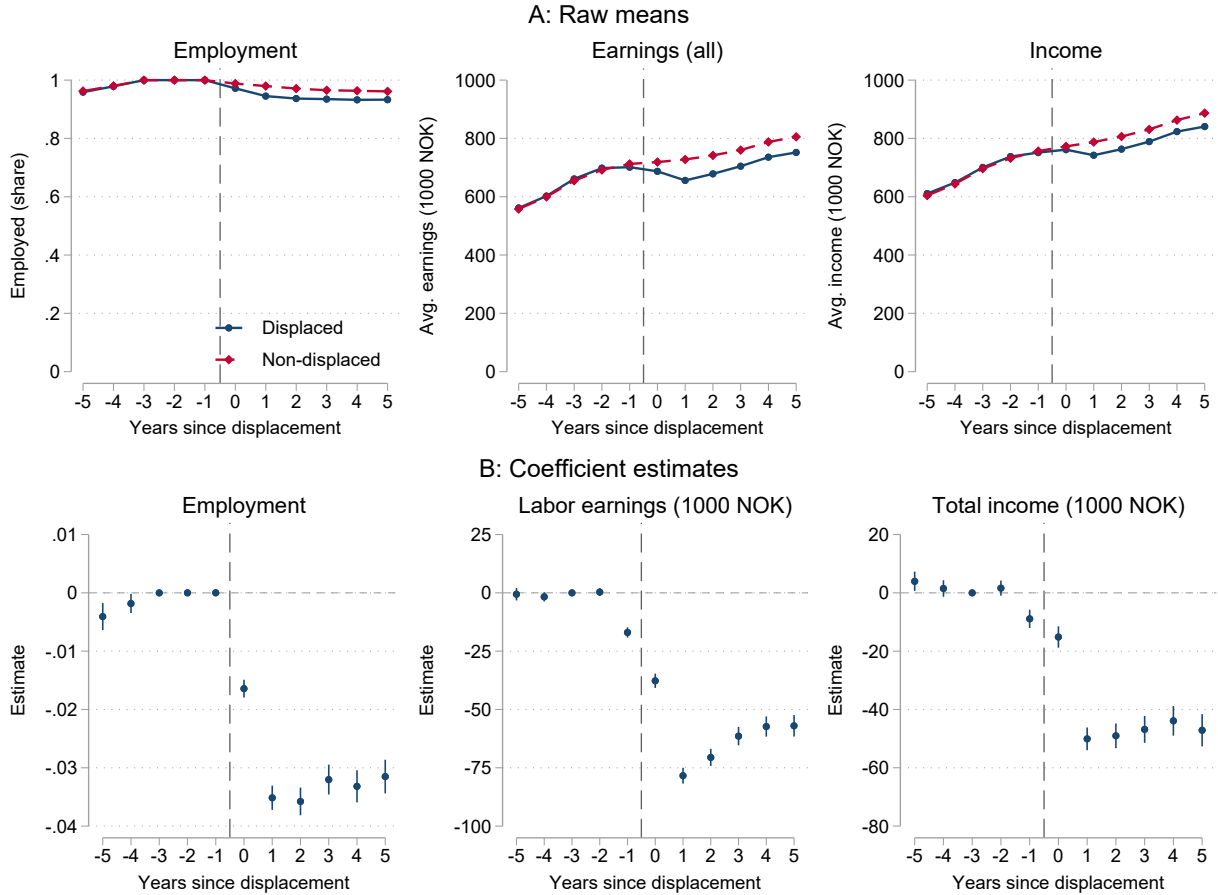
⁹The quadratic age term controls for lifecycle patterns in earnings and giving that the fixed effects do not absorb, and is standard in the displacement literature (Jacobson, LaLonde and Sullivan, 1993; Lachowska, Mas and Woodbury, 2020; Bertheau et al., 2023).

¹⁰Coefficients are normalized relative to $t^* - 3$ rather than $t^* - 1$ (Bertheau et al., 2023). This avoids capturing “Ashenfelter’s dip”, the deterioration of earnings often observed immediately prior to displacement due to firm distress. As noted by Miller (2023), selecting a reference period that is contaminated by anticipatory effects would effectively bias the results as these pre-displacement changes are part of the treatment response.

¹¹The full effect of displacement is not observed until $t^* + 1$ because employment is defined as having any positive labor income during the calendar year. Workers separated in t^* are therefore classified as employed that year. A similar logic applies to earnings and income, as annual earnings in t^* are buffered by wages received prior to the separation date.

Labor earnings (Column 2) are estimated to fall by about 17,000 NOK already in $t^* - 1$, consistent with pre-layoff establishment distress and the mechanical inclusion of early leavers.¹² The full earnings penalty emerges in $t^* + 1$, when the labor earnings of displaced workers fall an estimated 78,000 NOK below those of control workers ($p < 0.01$). The estimated earnings recover steadily thereafter, but a gap of about 57,000 NOK remains at $t^* + 5$. This residual gap likely reflects both lower wages among re-employed workers and zero earnings for the roughly 3% of workers who exit the labor market.

Figure 2 – The effects of job loss on employment, earnings and income.



Note: The figure displays the trajectories of employment, labor earnings and total income around the displacement event. Panel A plots the unadjusted averages for the treated and matched control groups. Panel B plots event study estimates of displacement (θ_k s in Equation 1). Estimates are normalized relative to $t^* - 3$, where t^* is the displacement year. Earnings and income are in 2023 NOK. Vertical bars represent 95% confidence intervals. Standard errors are clustered at the worker level.

Total income (Column 3) is estimated to fall by less than labor earnings in every post-displacement period, likely reflecting the partial replacement of lost earnings by unemployment benefits and other transfers, as well as possible business or capital income. Relative to controls, displaced workers' income falls by an estimated 50,000 NOK in $t^* + 1$ (CI $[-53, 989; -46, 169]$), against 78,000 NOK for labor earnings. By $t^* + 5$ income remains an estimated 47,000 NOK

¹²Because the displacement window spans from November of $t^* - 1$ to November of t^* , the treatment group includes workers who separate late in the pre-displacement year. Since outcomes capture earnings over the full calendar year, these early leavers contribute only partial-year earnings, pulling down the $t^* - 1$ estimate.

below the control group (CI $[-52, 662; -41, 591]$), compared with 57,000 NOK for earnings. The difference between the two, about 28,000 NOK at $t^* + 1$ and 10,000 NOK at $t^* + 5$, represents the part of the earnings loss cushioned by other income, around a third in the first year and under a fifth by year five.

To benchmark these magnitudes against the cross-country evidence in Bertheau et al. (2023), I express each loss relative to its pre-displacement level in $t^* - 3$ (Appendix Table A.3). In those terms, employment falls by about 3.5 percentage points (pp) in $t^* + 1$ and 3.2 pp by year five, labor earnings by 11.9% in $t^* + 1$ and 8.6% by year five, and total income by 7.1% and 6.7%. These estimates place Norway within the Scandinavian range documented by Bertheau et al. (2023), whose cross-country analysis (covering longer sample periods starting in the 1980s and 1990s) shows that Swedish and Danish labor markets are characterized by swift re-employment and limited earnings losses. My estimate of the long-run employment penalty (3.2 pp) is comparable to their estimates for Denmark (3.6 pp) and Sweden (4.1 pp), but the year-five earnings loss (8.6%) is somewhat below that of the other Scandinavian countries ($\approx 11.5\%$) and well below Southern Europe ($\approx 30\%$). These patterns are consistent with Scandinavian labor markets limiting the costs of job displacement, placing Norway among the lower-cost cases.

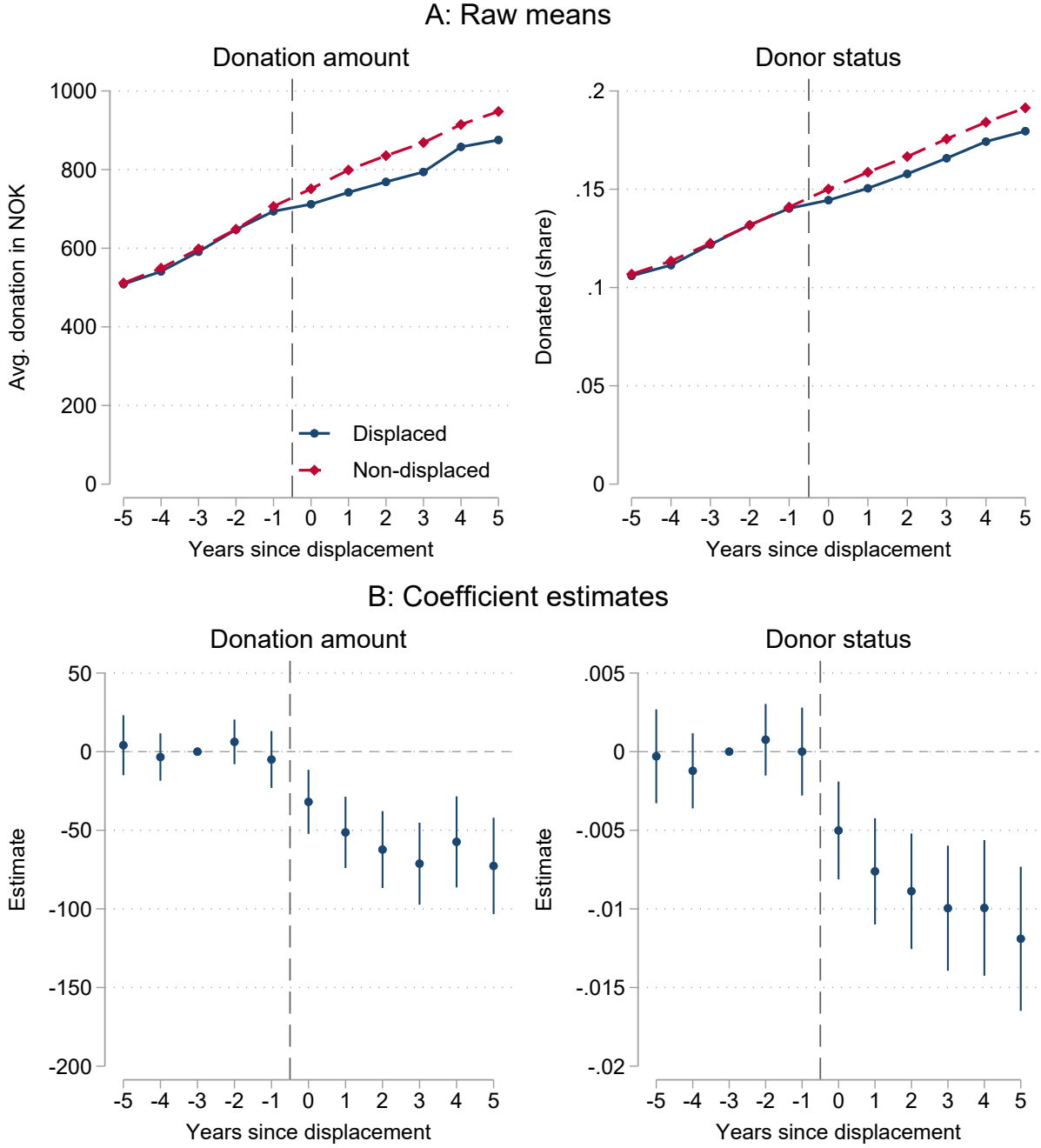
4.2 Donations

I now turn to the central question of the paper, the response of charitable giving to job loss. Figure 3 displays the event study estimates for donation amounts, with full regression results reported in Column 4 of Appendix Table A.4. The pre-displacement coefficients are again small and statistically insignificant, consistent with parallel trends between displaced and non-displaced workers prior to job loss. In the first post-layoff year ($t^* + 1$), donations are estimated to fall by 51 NOK ($p < 0.01$), or 8.7% of the pre-displacement average of 591 NOK. The confidence intervals are wider for donations than for labor market outcomes, but even in the first year after job loss, the estimated decline in giving exceeds the estimated income loss in relative terms (8.7% against 7.1%). The gap between the two widens over time. Income recovers slightly and stabilizes at around 6.7% below baseline, while giving continues to fall, reaching 73 NOK, or 12.3% below its pre-displacement level by year five.¹³ The response in giving is then nearly twice the estimated income loss. For comparison, Andersen et al. (2023) find that Danish displaced workers reduce *overall* spending by only about 30% of the corresponding income loss, thus smoothing consumption against the shock. Consequently, my results suggest that donations are cut more readily than other expenses.

The ratio of the donation loss to the income loss gives an implied marginal propensity to donate (MPD) out of lost income. In $t^* + 1$, this implies an MPD of approximately 0.001, or roughly 10 NOK less in giving per 10,000 NOK of lost income. By year five, this

¹³Appendix Figure A.5 shows that the results for donation amount and donor status are similar when estimated using the heterogeneity-robust, interaction-weighted estimator of Sun and Abraham (2021), which allows the effect of displacement to vary across displacement-year cohorts.

Figure 3 – The effects of job loss on donation amount and donor status.



Note: The figure displays the trajectories of donation amounts and donor status around the displacement event. Panel A plots the unadjusted averages for the treated and matched control groups. Panel B plots event study estimates of displacement ($\theta_{k,s}$ in Equation 1). Estimates are normalized relative to $t^* - 3$, where t^* is the displacement year. Donations are in 2023 NOK. Donor status is an indicator variable equal to 1 if the individual made a tax-deductible donation that year. Vertical bars represent 95% confidence intervals. Standard errors are clustered at the worker level.

ratio increases to about 15 NOK per 10,000 NOK lost as donations continue to decline while income stays largely unchanged. These responses are necessarily small in absolute terms, as donations average only about 0.1% of income in the sample. To benchmark the magnitudes of the implied MPDs, I therefore compare them to Geys and Sørensen (2025), who study charitable giving in response to lottery winnings using the same Norwegian tax-deduction

data. They find that a 10,000 NOK increase in unearned annual income raises donations by roughly 10 NOK *conditional on donating*. Scaling my estimates by the pre-displacement donor share (0.12) to approximate a comparable conditional MPD yields figures of about 85 NOK in $t^* + 1$ and 128 NOK in $t^* + 5$ per 10,000 NOK of lost income, roughly 8 to 13 times larger than the lottery response. While these back-of-the-envelope calculations should be interpreted cautiously given the different samples and identification strategies, they point toward a notable asymmetry: giving appears substantially more responsive to earned income losses than to windfall gains.

Finally, I examine the extensive margin. The probability of making a tax-deductible donation (Column 5, Appendix Table A.4) falls by an estimated 0.8 percentage points in $t^* + 1$ and 1.2 percentage points in $t^* + 5$ relative to the control group, all significant at $p < 0.01$ from $t^* + 1$ onward. Against the pre-displacement donor rate, the year-five decline of 1.2 percentage points amounts to a relative reduction of 10% in the share of donors. A back-of-the-envelope calculation attributes around 81% of the reduction in total donations at $t^* + 5$ to this extensive margin response.¹⁴ The extensive margin response operates through two channels, as illustrated in Appendix Figure A.6. Among workers who donated at least once in the pre-displacement period (19% of the sample), I estimate a persistent reduction of around 3 percentage points in the probability of donating and a 250 to 340 NOK reduction in the amount donated over the five years (all $p < 0.01$). The per-person response among previous non-donors is far smaller. Their likelihood of (starting) donating falls gradually ($p < 0.05$ from $t^* + 2$) and reaches only about 0.7 percentage points by $t^* + 5$. Because previous non-donors make up the large majority of the sample, however, the two groups contribute roughly equally to the aggregate extensive margin response when weighting effects by size, taking the point estimates at face value. The decline thus reflects both previous donors stopping their donations and a slower rate of entry among previous non-donors. Given the high persistence of giving in the population (Appendix Figure A.1), the exit of previous donors is consistent with displacement disrupting established giving habits (Landry et al., 2010; Meer, 2013; Adena and Huck, 2019).

Robustness. One might be concerned that firms retain discretion over whom to dismiss even during mass layoffs, so that displaced workers are selected on (time-varying) characteristics that also predict their giving. As described in Section 2, mass layoff procedures in Norway typically follow general criteria agreed upon with unions. A prominent norm is to go by seniority (Huttunen, Møen and Salvanes, 2011), which is accounted for by matching treated and control workers on tenure. Nonetheless, firms may exercise discretion along dimensions I do not observe. I therefore re-estimate the main results using progressively stricter mass layoff definitions, raising the required employment drop from 30% to 50% and 70%, since larger layoffs leave less scope for selective dismissal. I also vary the minimum establishment size from

¹⁴Multiplying the average donation among active donors ($\approx 591/0.12 \approx 4,900$ NOK) by the 1.2 percentage point decline in donor probability implies an extensive margin loss of roughly 59 NOK, about 81% of the total 73 NOK decline by year five.

50 employees in the baseline to 30 and 100. Appendix Table A.5 reports the estimated effects on donation amounts and donor status at $t^* + 1$ and $t^* + 5$ for each definition. The results remain similar across specifications, thus suggesting that they are not driven by selection of workers into displacement or a particular definition of mass layoffs.

4.3 Types of charitable causes

Finally, I analyze the effects of job loss on giving to international, religious and other causes using the more detailed data from 2012 to 2023. Figure 4 displays the event study estimates, with full regression results reported in Appendix Table A.6.

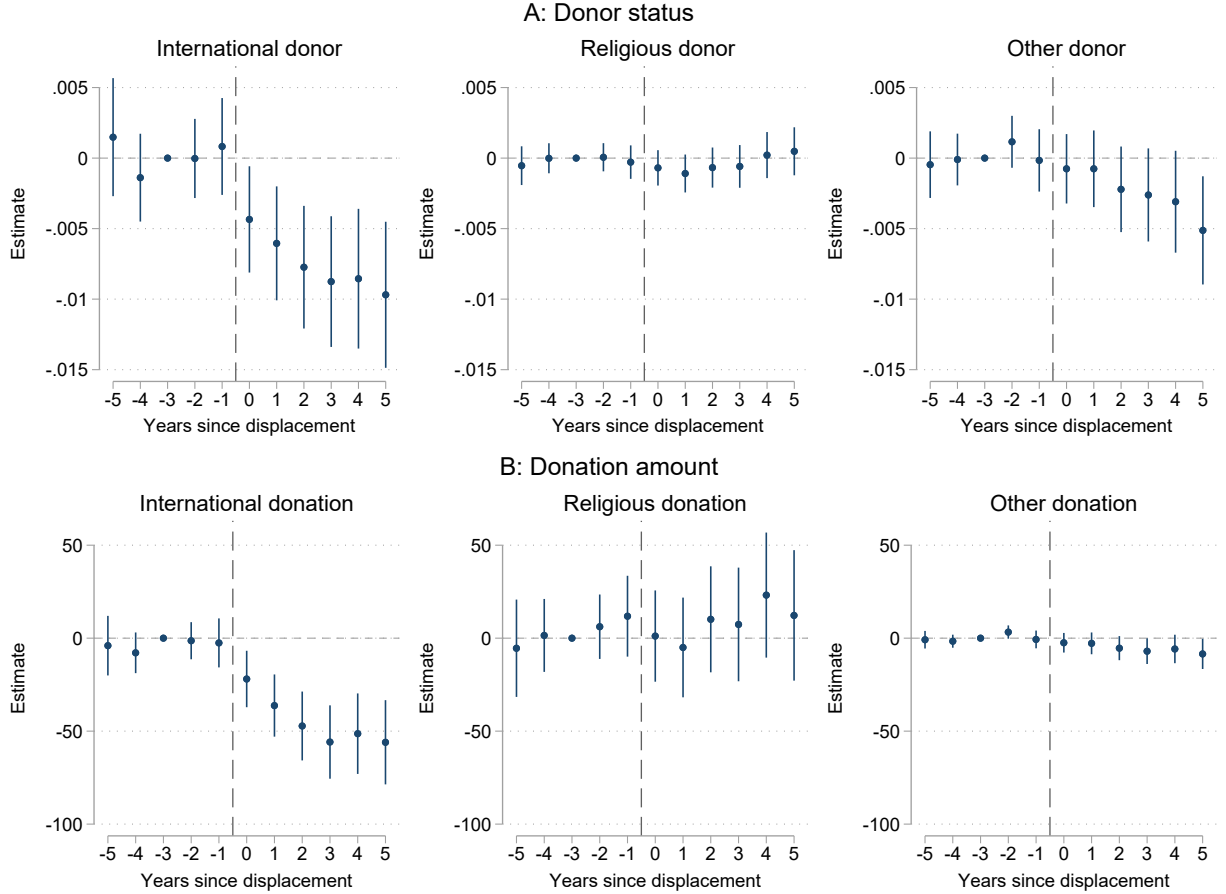
Figure 4 reveals that the aggregate decline in donations is driven primarily by giving to international causes. Donations to international causes fall by an estimated 36 NOK in the first post-displacement year and by 56 NOK in $t^* + 5$ (Column 4, Appendix Table A.6), with the decline statistically significant at $p < 0.01$ in every post-displacement period. International giving is the most common of the three causes in the sample (Appendix Figure A.4), so part of this absolute magnitude reflects its larger baseline share, but its decline is also the clearest and most consistent of the three.

The decline in international giving operates on both margins. The probability of donating to an international cause is estimated to fall by 1.0 percentage points by $t^* + 5$ (Column 1, $p < 0.01$), a reduction of 9% relative to the baseline donor share. This extensive margin response accounts for roughly two thirds of the total reduction in international donations.¹⁵ Taken together, these results suggest that individuals treat support for distant beneficiaries as a discretionary expenditure that is disproportionately cut after job loss. This is consistent with the proposition that universalist moral concerns are ‘luxury goods’ whose weight increases in income (Enke, Polborn and Wu, 2025).

Religious giving, by contrast, shows no response on the extensive margin. The estimated effect of job loss on the probability of donating to a religious organization is close to zero and relatively precisely estimated, with 95% confidence intervals contained within ± 0.2 percentage points at every horizon (Column 2). This suggests that displaced workers donate to religious causes at around the same rate as non-displaced workers, despite religious donors having the lowest income among the donor groups (Appendix Table A.2). The amount given (-5 NOK in $t^* + 1$ and $+12$ NOK in $t^* + 5$, Column 5) is also statistically insignificant, but imprecisely estimated. The year-five confidence interval, $[-23, 47]$ NOK, is wide enough to admit a modest response in either direction, so the intensive margin results are less informative. The resilience of religious giving is consistent with views of religious affiliation as a form of informal social insurance, with congregations providing mutual aid and social services (Berman, 2000; Hungerman, 2005), or as a means to salvation (Azzi and Ehrenberg, 1975). Individuals thus maintain their membership after job loss, possibly to preserve their standing

¹⁵Scaling the average donation per international donor ($\approx 406/0.11 \approx 3,700$ NOK) by the 1.0 percentage point drop in donor probability yields an extensive margin contribution of roughly 37 NOK, or 66% of the 56 NOK decline.

Figure 4 – The effects of job loss on giving to different charitable causes.



Note: The figure plots event study estimates of displacement (θ_k 's in Equation 1) on giving to international, religious and other causes, using data from 2012 to 2023. The top panel displays estimates for the extensive margin (donor status), where the outcome is an indicator variable equal to one if the individual donated to the specific cause in that year. The bottom panel displays estimates for the intensive margin (amount donated to the cause), measured in 2023 NOK. Causes are categorized based on the organizations' ICNPO codes. Estimates are normalized relative to $t^ - 3$, where t^* is the displacement year. Vertical bars represent 95% confidence intervals. Standard errors are clustered at the worker level.*

within the religious community and access to the social safety net it provides, or to fulfill religious obligations. Since religious giving is closely tied to religious attendance (Gruber and Hungerman, 2008), maintained membership would then also sustain giving.¹⁶

Finally, contributions to all other causes (Columns 3 and 6) decline modestly and only at longer horizons. The point estimates for both the donation probability and amount are negative in every post-displacement year, and grow in magnitude over time, though they are imprecisely estimated at shorter horizons. The decline in the amount given is statistically significant ($p < 0.05$) at $t^* + 3$ and $t^* + 5$, and the decline in the probability of donating at $t^* + 5$, with reductions estimated at 8 NOK and 0.5 percentage points in the fifth period after job loss. Given the low average participation rate (3%) and donation (58 NOK) in this residual category (Appendix Table A.6), the early insignificance likely reflects limited statistical power rather than the absence of a response. The modest decline in giving to other causes, alongside the larger fall in international giving, thus leaves religious giving as the only category that does not respond to displacement.

5 Conclusion

Charitable organizations provide important public benefits and rely heavily on individual donations to fund their operations (List, 2011). How these donations respond to negative economic shocks thus has implications both for the stability of the non-profit sector and for our understanding of how personal experience shapes pro-social behavior. In this paper, I exploited mass layoffs as a source of plausibly exogenous variation in employment to estimate how job loss affects individual charitable giving, and how that effect varies across charitable causes. Using administrative records on the universe of tax-deductible donations and employment spells in Norway, I found that displacement reduces giving by at least as much as income in percentage terms, and that the gap widens to roughly a factor of two by the fifth year after job loss. The response is primarily driven by previous donors stopping their donations altogether, rather than reducing their donation amounts. It is concentrated in giving to international aid and development organizations, while giving to religious congregations remains stable.

Any study of a single country faces questions of external validity. My estimates place Norway among the lower-cost settings for job displacement, with displacement costs comparable to other Scandinavian countries but well below other parts of Europe (Bertheau et al., 2023). The giving response may therefore be larger in settings where displacement imposes larger and less insured income losses. The composition of giving also differs across countries. International aid is prominent in Norway, whereas charitable giving in the United States is dominated by religious causes (List, 2011; Andreoni and Payne, 2013). Because giving to religious causes is the most resilient to displacement in my data, the aggregate response may be smaller in settings where religious giving accounts for a larger share of donations. How the

¹⁶Religious engagement has indeed been found to increase when economic circumstances worsen (Chen, 2010; Laeven, Popov and Sievert, 2024). This could also explain why the point estimates for religious donation amounts turn positive at longer horizons, though these estimates are imprecise.

response to economic shocks depends on the composition of giving, and on institutional and cultural context more broadly, is an open question.

Several questions remain for future work. Job loss is a bundled treatment that reduces earnings, but also ends an employment relationship, alters individuals' time use, and can affect identity, social networks and well-being (Charles and Stephens, 2004; Sullivan and von Wachter, 2009; Aguiar, Hurst and Karabarbounis, 2013; Hetschko, Knabe and Schöb, 2014; Amorim et al., forthcoming). My estimates therefore reflect the response to the full experience of job loss rather than to the income loss alone. The persistence of the decline in giving, in particular, may owe as much to the psychological and social consequences of displacement as to the fall in income itself. Adverse economic experiences have been shown to leave lasting impacts on beliefs and decisions beyond what is explained by financial capacity (Malmendier and Nagel, 2011; Malmendier and Shen, 2024), so distinguishing these channels would clarify why giving remains low after job loss. Designs that exploit discontinuities in unemployment benefit eligibility or generosity are well suited for isolating the income channel (e.g. Britto, Pinotti and Sampaio, 2022; Barros and Schmeißer, 2025), and combining such variation with administrative data on giving is a promising avenue for future research. Linking donation records to data on congregation membership or religious attendance would likewise test whether the stability of religious giving reflects membership obligations, as club-good models of religious organizations suggest (Iannaccone, 1992).

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Appendix A: Supplementary tables and figures

Appendix tables

Table A.1 – Top 10 charitable organizations in 2023, by category.

Rank	Norwegian name	English name	Total NOK
International			
1	SOS Barnebyer	SOS Children’s Villages	533,792,780
2	Leger uten grenser	Doctors Without Borders	437,778,192
3	Plan International	Plan International	346,452,479
4	Redd Barna	Save the Children	284,644,807
5	Røde Kors	Red Cross	247,026,810
6	UNICEF	UNICEF	176,966,876
7	Kirkens Nødhjelp	Norwegian Church Aid	158,674,279
8	Flyktninghjelpen	Norwegian Refugee Council	93,408,795
9	Norsk Folkehjelp	Norwegian People’s Aid	74,300,991
10	Amnesty International	Amnesty International	69,202,623
Religious			
1	Pinsebevegelsen	Pentecostalist Movement	252,635,782
2	Brunstad Christian Church	Brunstad Christian Church	237,100,562
3	Normisjon	Normisjon	98,026,638
4	Misjonsskirken	The Mission Covenant Church	88,109,308
5	Den norske kirke	Church of Norway	87,853,209
6	Den evangelisk lutherske frikirke	The Evangelical Lutheran Free Church	85,584,466
7	Misjonssambandet	Norwegian Lutheran Mission	83,433,287
8	Syvendedags adventistkirken	Seventh-day Adventist Church	76,873,111
9	Jehovas vitner	Jehovah’s Witnesses	72,846,293
10	Frelsesarmeen	The Salvation Army	62,066,342
Other			
1	Norsk Luftambulanse	Norwegian Air Ambulance Foundation	264,088,312
2	Norges Blindeforbund	The Norwegian Association of the Blind and Partially Sighted	120,617,328
3	Kirkens Bymisjon	Church City Mission	108,658,216
4	Redningssekskapet	Norwegian Society for Sea Rescue	90,892,019
5	WWF Verdens naturfond	World Wildlife Fund	36,501,424
6	Greenpeace Norden	Greenpeace Nordic	25,784,693
7	Effektiv Altruisme Norge	Effective Altruism Norway	23,735,938
8	Brunstad ungdomsklubb	Brunstad Youth Club	22,411,765
9	Stine Sofies stiftelse	The Stine Sofie Foundation	19,716,550
10	LHL	National Association for Heart and Lung Disease	18,330,506

Note: The table ranks organizations by total donations received under the tax deduction scheme for gifts to voluntary organizations in 2023, within three mutually exclusive categories (international, religious and other). Organizations are categorized based on the organizations’ ICNPO codes. Data are from the Norwegian Tax Administration.

Table A.2 – Descriptive statistics by donor status.

	Non-donor	Any donor	International	Religious	Other
<i>Panel A. Population</i>					
Income	535,835	747,337	801,799	663,833	692,666
Age	46.0	57.6	55.6	60.0	63.1
Female (share)	0.48	0.56	0.59	0.55	0.55
Higher education (share)	0.33	0.52	0.61	0.53	0.41
No. of individuals	3,647,789	924,342	617,073	136,959	462,282
<i>Panel B. Matched sample</i>					
Income	707,854	864,890	872,192	777,281	926,443
Age	35.7	37.3	37.1	37.4	38.2
Female (share)	0.31	0.43	0.45	0.32	0.43
Higher education (share)	0.38	0.58	0.60	0.54	0.55
No. of individuals	45,282	10,122	8,454	1,092	2,221

Note: The table displays descriptive statistics by donor status, where ‘Any donor’ denotes individuals who made a tax-deducted donation to any cause, and ‘International’, ‘Religious’ and ‘Other’ denote individuals who made a tax-deducted donation to each of the causes in the label. Panel A displays results for the full population in 2023. Panel B displays results for the matched sample in 2012-2023, where donor status is classified in $t^* - 3$ to $t^* - 1$; income is measured in $t^* - 3$ and all other variables are measured in $t^* - 1$. Higher education is an indicator equal to one if the individual has completed education beyond upper secondary school. Income is in 2023 NOK. Causes are categorized based on the organizations’ ICNPO codes.

Table A.3 – Descriptive statistics in the matched sample.

	Treated		Control		Difference
	Mean	SD	Mean	SD	Std. Diff
<i>Panel A. Worker characteristics</i>					
Earnings in $t^* - 3$	661,050	419,316	655,067	398,089	0.01
Income in $t^* - 3$	700,463	461,956	696,410	448,105	0.01
Donor in $t^* - 3$	0.12	0.33	0.12	0.33	-0.00
Donation in $t^* - 3$	591	2,428	598	2,408	-0.00
International donor in $t^* - 3$	0.11	0.32	0.12	0.32	-0.01
International donation in $t^* - 3$	406	1,408	424	1,469	-0.01
Religious donor in $t^* - 3$	0.02	0.13	0.02	0.13	0.00
Religious donation in $t^* - 3$	242	2,646	233	2,577	0.00
Other donor in $t^* - 3$	0.02	0.14	0.02	0.14	-0.01
Other donation in $t^* - 3$	33	318	34	314	-0.00
Age	36.2	7.9	36.2	7.9	0.00
Female	0.32	0.47	0.32	0.47	0.00
Tenure	5.36	2.88	5.38	2.84	-0.01
Full time	0.84	0.36	0.84	0.36	-0.00
<i>Panel B. Employer characteristics</i>					
Industry:					
Manufacturing	0.20	0.40	0.20	0.40	0.00
Services	0.34	0.47	0.34	0.47	0.00
Trade and transport	0.27	0.44	0.27	0.44	0.00
Primary sector and construction	0.19	0.39	0.19	0.39	0.00
Establishment size	284	349	276	424	0.02
Percent treated workers	2.18				
No. of workers	64,766		64,766		
No. of employers	4,219		7,354		

Note: The table is adapted from Bertheau et al. (2023), and displays descriptive statistics for treated and control workers, with t^* denoting the displacement year for treated workers. Percent treated workers reports the average share of treated workers out of all workers in a given year. Earnings, income and donations are measured in $t^* - 3$, and all other variables in $t^* - 1$. Earnings, income and donations are in 2023 NOK. Data for the cause-level donation variables cover 2012-2023, and data for all other variables cover 2004-2023.

Table A.4 – Main results in table format.

	(1)	(2)	(3)	(4)	(5)
	Employment	Labor earnings	Total income	Donation amount	Donor status
$t^* - 5$	-0.004 (0.001) [-0.006, -0.002]	-582.832 (1366.890) [-3261.913, 2096.248]	3955.021 (1684.829) [652.786, 7257.257]	4.065 (9.722) [-14.990, 23.121]	-0.000 (0.002) [-0.003, 0.003]
$t^* - 4$	-0.002 (0.001) [-0.003, -0.000]	-1691.592 (1011.735) [-3674.575, 291.391]	1501.272 (1441.378) [-1323.803, 4326.347]	-3.428 (7.682) [-18.485, 11.629]	-0.001 (0.001) [-0.004, 0.001]
$t^* - 3$					
$t^* - 2$	0.000 (0.000) [-0.000, 0.000]	343.640 (850.535) [-1323.394, 2010.675]	1628.948 (1319.975) [-958.180, 4216.076]	6.218 (7.242) [-7.976, 20.411]	0.001 (0.001) [-0.002, 0.003]
$t^* - 1$	0.000 (0.000) [-0.000, 0.000]	-16982.460 (1124.087) [-19185.651, -14779.269]	-8905.182 (1592.416) [-12026.288, -5784.075]	-4.982 (9.224) [-23.062, 13.098]	0.000 (0.001) [-0.003, 0.003]
t^*	-0.016 (0.001) [-0.018, -0.015]	-37703.269 (1569.535) [-40779.531, -34627.008]	-15142.187 (1868.799) [-18804.999, -11479.374]	-31.933 (10.395) [-52.307, -11.558]	-0.005 (0.002) [-0.008, -0.002]
$t^* + 1$	-0.035 (0.001) [-0.037, -0.033]	-78398.103 (1728.896) [-81786.709, -75009.498]	-50078.931 (1995.113) [-53989.317, -46168.544]	-51.344 (11.575) [-74.030, -28.658]	-0.008 (0.002) [-0.011, -0.004]
$t^* + 2$	-0.036 (0.001) [-0.038, -0.033]	-70552.846 (1875.031) [-74227.874, -66877.818]	-49032.501 (2164.049) [-53273.999, -44791.004]	-62.268 (12.479) [-86.727, -37.810]	-0.009 (0.002) [-0.013, -0.005]
$t^* + 3$	-0.032 (0.001) [-0.035, -0.029]	-61437.261 (2010.514) [-65377.833, -57496.690]	-46828.760 (2357.169) [-51448.771, -42208.750]	-71.219 (13.319) [-97.324, -45.113]	-0.010 (0.002) [-0.014, -0.006]
$t^* + 4$	-0.033 (0.001) [-0.036, -0.030]	-57320.248 (2200.884) [-61633.942, -53006.554]	-43896.812 (2594.064) [-48981.132, -38812.491]	-57.355 (14.790) [-86.343, -28.367]	-0.010 (0.002) [-0.014, -0.006]
$t^* + 5$	-0.032 (0.001) [-0.034, -0.029]	-56999.965 (2350.088) [-61606.096, -52393.833]	-47126.461 (2824.330) [-52662.099, -41590.823]	-72.679 (15.635) [-103.323, -42.035]	-0.012 (0.002) [-0.016, -0.007]
Individual FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES
Event period FE	YES	YES	YES	YES	YES
Mean dep. var	0.97	688364.57	748613.22	713.46	0.15
Observations	1,291,815	1,291,815	1,291,815	1,291,815	1,291,815
Clusters	129,532	129,532	129,532	129,532	129,532
R-squared	0.29	0.81	0.77	0.77	0.68

Note: The table displays event study estimates of displacement (θ_k 's in Equation 1) on employment, labor earnings, total income, donation amounts and donor status. Estimates are normalized relative to $t^ - 3$, where t^* is the displacement year. Standard errors, clustered at the worker level, are reported in parentheses, and 95% confidence intervals in brackets.*

Table A.5 – Robustness to the mass-layoff definition and firm size.

	Baseline	Panel A: Layoff share		Panel B: Firm size	
	30%, ≥ 50	50%	70%	≥ 30	≥ 100
<i>Donation amount</i>					
$t^* + 1$	-51.3 (11.6) [-74.0, -28.7]	-39.6 (15.1) [-69.2, -10.1]	-68.0 (17.2) [-101.7, -34.3]	-48.7 (9.8) [-67.8, -29.5]	-59.4 (14.6) [-88.0, -30.9]
$t^* + 5$	-72.7 (15.6) [-103.3, -42.0]	-62.2 (19.7) [-100.9, -23.6]	-63.9 (22.1) [-107.1, -20.7]	-72.3 (13.3) [-98.3, -46.2]	-85.1 (19.8) [-123.9, -46.3]
Mean dep. var.	713.46	743.98	724.55	684.67	719.30
R-squared	0.77	0.77	0.76	0.77	0.75
<i>Donor status</i>					
$t^* + 1$	-0.008 (0.002) [-0.011, -0.004]	-0.007 (0.002) [-0.012, -0.003]	-0.009 (0.003) [-0.014, -0.004]	-0.007 (0.001) [-0.010, -0.004]	-0.010 (0.002) [-0.014, -0.006]
$t^* + 5$	-0.012 (0.002) [-0.016, -0.007]	-0.006 (0.003) [-0.012, -0.001]	-0.008 (0.003) [-0.015, -0.002]	-0.011 (0.002) [-0.015, -0.007]	-0.013 (0.003) [-0.019, -0.007]
Mean dep. var.	0.15	0.15	0.15	0.14	0.15
R-squared	0.68	0.69	0.69	0.68	0.68
Individual FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES
Event period FE	YES	YES	YES	YES	YES
Individuals	129,532	82,308	59,650	173,844	84,302
Observations	1,291,815	822,218	598,181	1,732,841	842,853

Note: The table displays event study estimates of displacement (θ_k 's in Equation 1) on donation amount and donor status at $t^* + 1$ and $t^* + 5$, where each column re-estimates the main specification on a sample defined by an alternative mass-layoff definition. The baseline column uses the main definition (an employment drop of at least 30% in establishments with at least 50 employees). Panel A raises the minimum employment drop to 50% and 70%, holding the establishment-size restriction at the baseline. Panel B lowers and raises the minimum establishment size to 30 and 100 employees, holding the employment-drop threshold at the baseline. Donation amounts are in 2023 NOK. Estimates are normalized relative to $t^* - 3$, where t^* is the displacement year. Standard errors, clustered at the worker level, are reported in parentheses, and 95% confidence intervals in brackets.

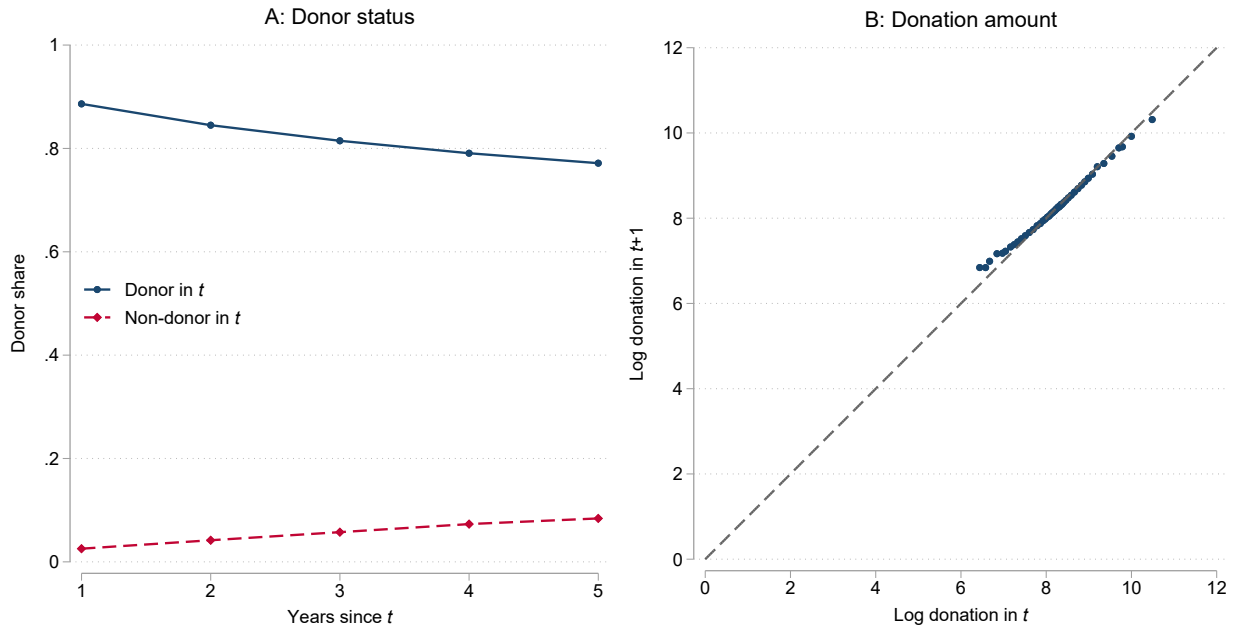
Table A.6 – The effects of job loss on giving to different charitable causes.

	(1)	(2)	(3)	(4)	(5)	(6)
	Int. donor	Rel. donor	Other donor	Int. donation	Rel. donation	Other donation
$t^* - 5$	0.001 (0.002) [-0.003, 0.006]	-0.001 (0.001) [-0.002, 0.001]	-0.000 (0.001) [-0.003, 0.002]	-4.026 (8.175) [-20.049, 11.997]	-5.420 (13.358) [-31.603, 20.762]	-0.833 (2.413) [-5.562, 3.895]
$t^* - 4$	-0.001 (0.002) [-0.004, 0.002]	-0.000 (0.001) [-0.001, 0.001]	-0.000 (0.001) [-0.002, 0.002]	-7.870 (5.579) [-18.805, 3.065]	1.488 (10.007) [-18.126, 21.102]	-1.621 (1.788) [-5.125, 1.884]
$t^* - 3$						
$t^* - 2$	-0.000 (0.001) [-0.003, 0.003]	0.000 (0.001) [-0.001, 0.001]	0.001 (0.001) [-0.001, 0.003]	-1.368 (5.091) [-11.348, 8.611]	6.159 (8.834) [-11.155, 23.473]	3.276 (1.826) [-0.303, 6.854]
$t^* - 1$	0.001 (0.002) [-0.003, 0.004]	-0.000 (0.001) [-0.001, 0.001]	-0.000 (0.001) [-0.002, 0.002]	-2.552 (6.723) [-15.729, 10.624]	11.815 (11.089) [-9.919, 33.549]	-0.672 (2.435) [-5.445, 4.101]
t^*	-0.004 (0.002) [-0.008, -0.001]	-0.001 (0.001) [-0.002, 0.001]	-0.001 (0.001) [-0.003, 0.002]	-21.946 (7.745) [-37.125, -6.767]	1.132 (12.520) [-23.407, 25.671]	-2.458 (2.690) [-7.730, 2.814]
$t^* + 1$	-0.006 (0.002) [-0.010, -0.002]	-0.001 (0.001) [-0.002, 0.000]	-0.001 (0.001) [-0.003, 0.002]	-36.246 (8.533) [-52.970, -19.522]	-4.996 (13.681) [-31.810, 21.818]	-2.788 (2.992) [-8.652, 3.076]
$t^* + 2$	-0.008 (0.002) [-0.012, -0.003]	-0.001 (0.001) [-0.002, 0.001]	-0.002 (0.002) [-0.005, 0.001]	-47.226 (9.446) [-65.740, -28.712]	10.148 (14.543) [-18.356, 38.653]	-5.372 (3.306) [-11.852, 1.107]
$t^* + 3$	-0.009 (0.002) [-0.013, -0.004]	-0.001 (0.001) [-0.002, 0.001]	-0.003 (0.002) [-0.006, 0.001]	-55.859 (10.067) [-75.591, -36.127]	7.375 (15.592) [-23.186, 37.935]	-6.994 (3.521) [-13.895, -0.092]
$t^* + 4$	-0.009 (0.003) [-0.014, -0.004]	0.000 (0.001) [-0.001, 0.002]	-0.003 (0.002) [-0.007, 0.001]	-51.366 (11.045) [-73.014, -29.719]	23.165 (17.155) [-10.458, 56.789]	-5.811 (3.908) [-13.471, 1.849]
$t^* + 5$	-0.010 (0.003) [-0.015, -0.005]	0.000 (0.001) [-0.001, 0.002]	-0.005 (0.002) [-0.009, -0.001]	-55.995 (11.554) [-78.640, -33.351]	12.244 (17.902) [-22.843, 47.331]	-8.466 (4.137) [-16.575, -0.357]
Individual FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
Event period FE	YES	YES	YES	YES	YES	YES
Mean dep. var	0.13	0.02	0.03	479.39	260.37	57.52
Observations	915,952	915,952	915,952	915,952	915,952	915,952
Clusters	121,219	121,219	121,219	121,219	121,219	121,219
R-squared	0.73	0.79	0.54	0.80	0.83	0.59

Note: The table displays event study estimates of displacement (θ_k 's in Equation 1) on giving to international, religious and other causes, using data from 2012 to 2023. Columns 1 to 3 display estimates for the extensive margin (donor status), where the outcome is an indicator variable equal to one if the individual donated to the specific cause in that year. Columns 4 to 6 display estimates for the intensive margin (amount donated to the cause), measured in 2023 NOK. Causes are categorized based on the organizations' ICNPO codes. Estimates are normalized relative to $t^* - 3$, where t^* is the displacement year. Standard errors, clustered at the worker level, are reported in parentheses, and 95% confidence intervals in brackets.

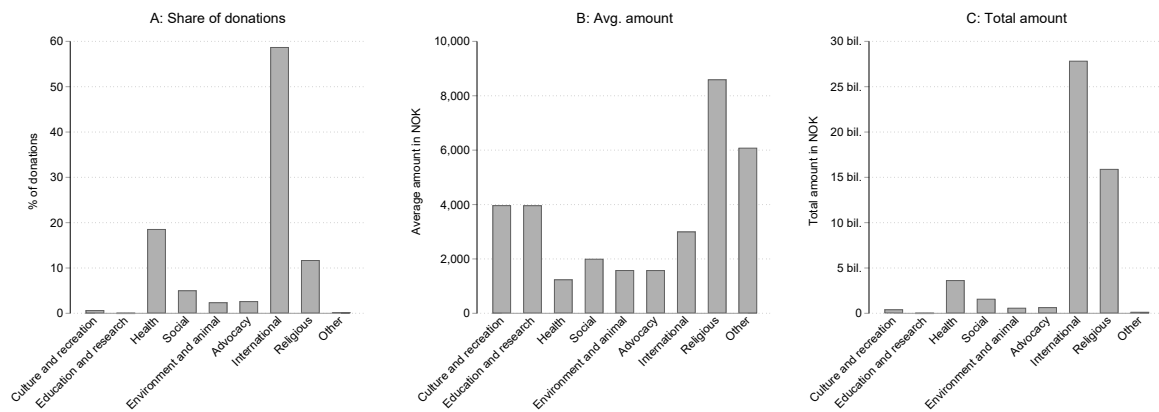
Appendix figures

Figure A.1 – Donation persistence in the population.



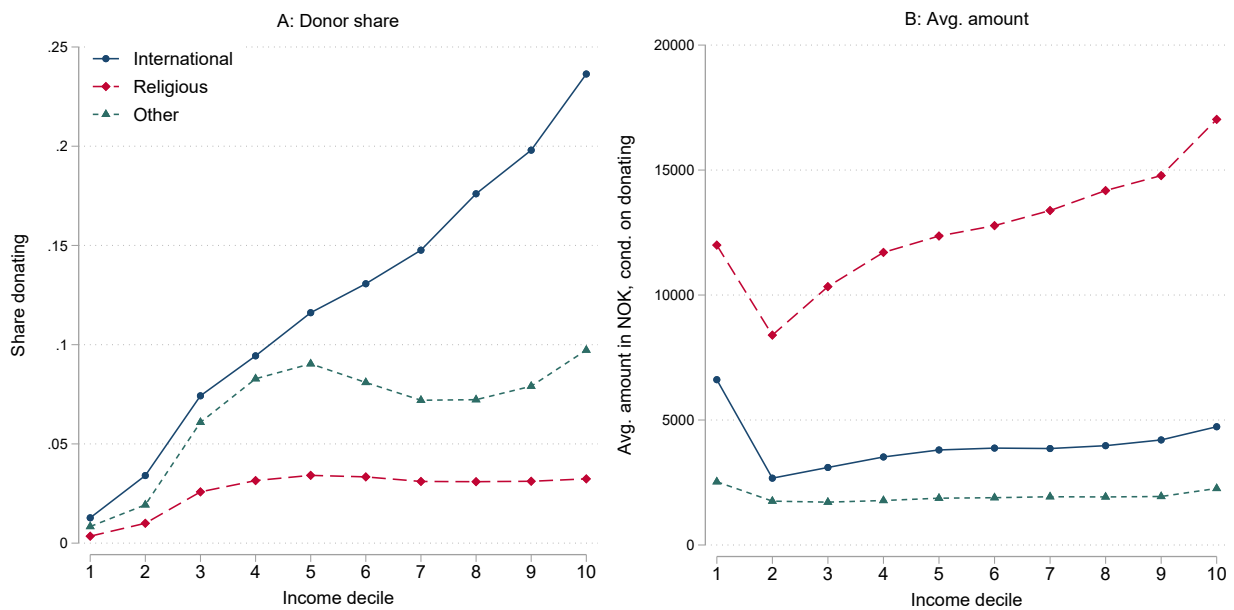
Note: The figure displays the persistence of tax-deductible donations in the population, using data for the 2004-2023 period. Panel A plots the share donating in year $t+k$, for $k = 1$ to 5, separately for individuals who did (solid blue line) and did not (dashed red line) donate in year t . Panel B plots the average log donation in year $t+1$ against the average log donation in year t within 50 equal-sized bins for individuals who donate in both years, with the dashed line marking the 45-degree line. Donations are in 2023 NOK.

Figure A.2 – Donation descriptives by type of cause.



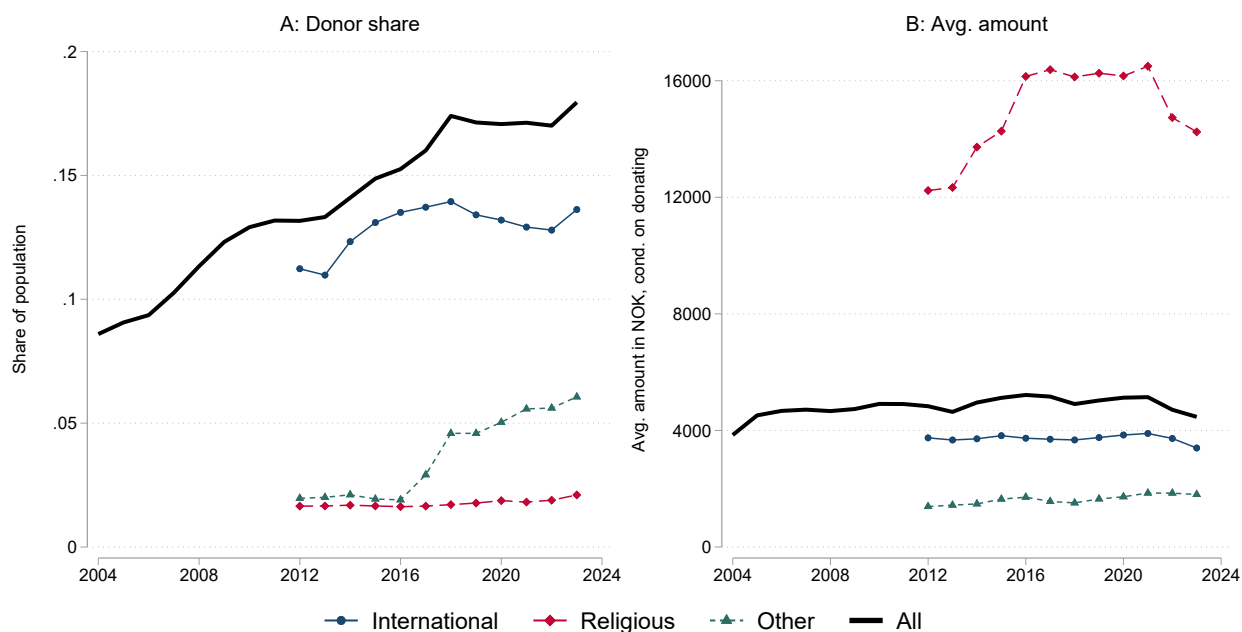
Note: Figure adapted from Bangum, Geys and Sørensen (forthcoming). The figure presents descriptive statistics for the full population of tax-deducted donations ($N = 16,769,755$) in Norway for the period 2012-2023. Panel A displays the percentage of the total number of donations to each type of cause. Panel B displays the average amount donated to an organization of each type of cause. Panel C displays the total amount donated to each type of cause. Causes are categorized based on the organizations' ICNPO codes. The 'Culture and recreation' category comprises the primary ICNPO codes '1100 Culture and arts', '1200 Sports', '1300 Other recreation and social clubs' and '13100 Children and youth organizations', 'Education and research' includes '2100 Primary and secondary education', '2200 Higher education', '2300 Other education' and '2400 Research'. 'Health' includes '3100 Hospitals and rehabilitation', '3300 Mental health and crisis intervention' and '3400 Other health services'. 'Social' includes '4100 Social services', '4300 Income support and maintenance', '6100 Economic, social and community development and employment training' and '14100 Diversity and inclusion'. 'Environment and animal' includes '5100 Environment' and '5200 Animal protection'. 'Advocacy' includes '7100 Civic and advocacy organizations' and '7300 Political organizations'. 'International' includes '9100 International activities', and 'Religious' includes '10100 Religious congregations and associations'. 'Other' includes '4200 Emergency and relief', '7200 Law and legal services', '8100 Grant-making foundations', '8200 Other philanthropic intermediaries' and '12100 Not elsewhere classified'.

Figure A.3 – Donations to different causes by income decile.



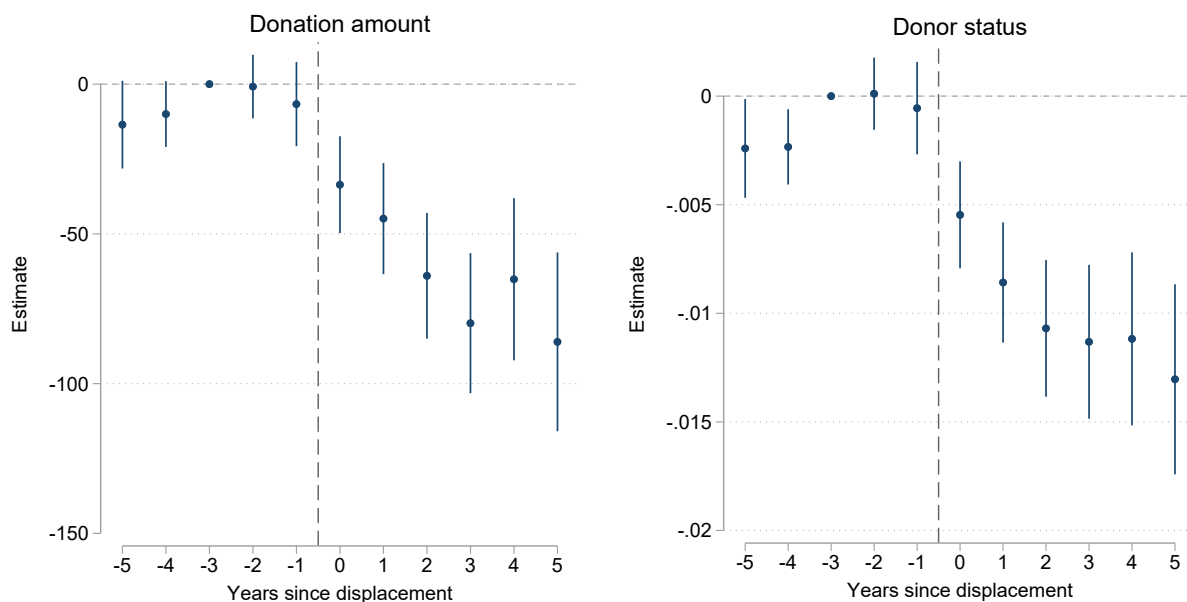
Note: The figure displays the share of the population donating to each cause (Panel A) and the average amount donated conditional on donating (Panel B) across within-year income deciles for the 2012-2023 period. Donations are in 2023 NOK. Causes are categorized based on the organizations' ICNPO codes.

Figure A.4 – Donations over time in matched sample.



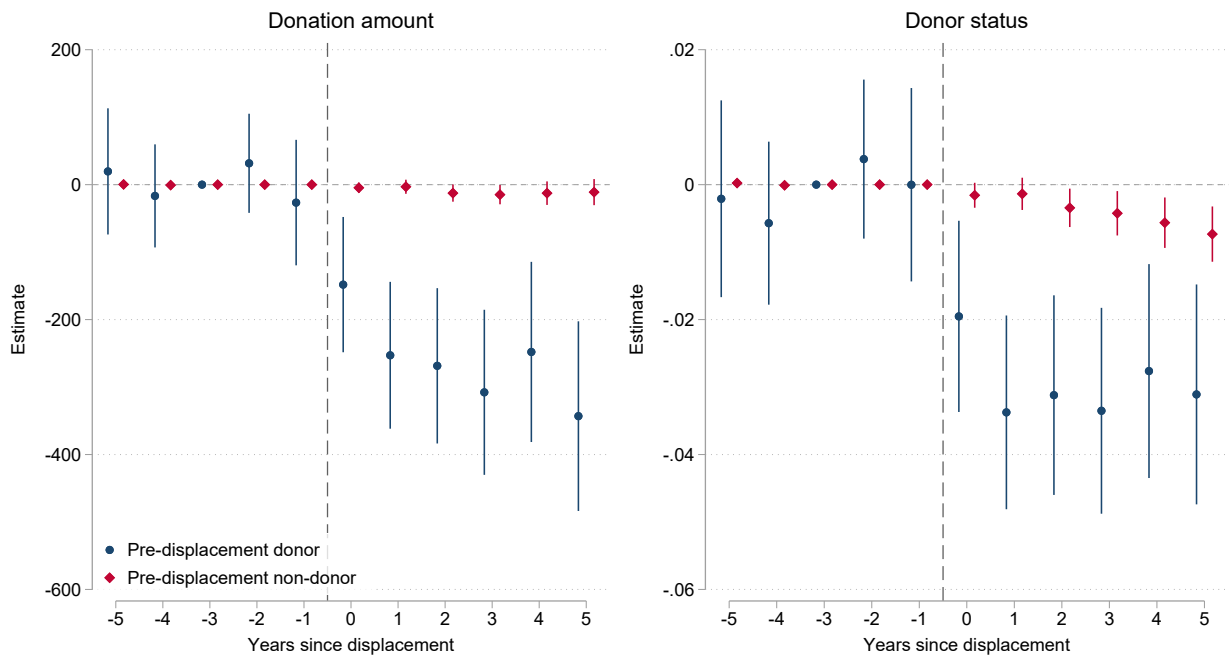
Note: The figure displays the trajectories of donations to international, religious, other and all causes over time in the matched sample. Panel A plots the share of the sample donating to each category, and Panel B the average amount donated conditional on making a donation in that category. Donations are in 2023 NOK.

Figure A.5 – Main results with heterogeneity-robust estimates.



Note: The figure plots interaction-weighted event study estimates of displacement on donation amount and donor status, following Sun and Abraham (2021). Estimates are normalized relative to $t^ - 3$, where t^* is the displacement year. Donation amounts are in 2023 NOK. Vertical bars represent 95% confidence intervals. Standard errors are clustered at the worker level.*

Figure A.6 – The effects of job loss on giving, by pre-displacement donor status.



Note: The figure plots event study estimates of displacement (θ_k 's in Equation 1) on donation amount and donor status, estimated separately for workers who made at least one tax-deductible donation in the pre-displacement period ($t^ - 5$ to $t^* - 1$, “pre-displacement donors”) and those who did not (“pre-displacement non-donors”). Estimates are normalized relative to $t^* - 3$, where t^* is the displacement year. Donation amounts are in 2023 NOK. Vertical bars represent 95% confidence intervals. Standard errors are clustered at the worker level.*