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Good Will Hunting: Do Disasters Make Us More Charitable?

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Humans are usually compassionate, caring and empathetic toward others, but are we really hard-wired for altruism when a disaster hits? There is evidence that people exposed to natural disasters tend to behave more philanthropically, but most studies rely on small-scale surveys and experimental data. For that reason, this paper makes a novel contribution to the literature by investigating whether the COVID-19 pandemic has altered prosocial tendencies and charitable donations, using a novel daily dataset of debit and credit card transactions. I conduct a real-time analysis of actual charitable donations in three European countries (Estonia, Latvia, and Lithuania) and find that the COVID-19 pandemic and government interventions have no significant effect on how much people contribute to charities as a share of total spending. A higher preference for precautionary savings in the midst of the pandemic appears to outweigh altruistic behavior, while government welfare programs crowds out private charitable donations.

Key Words: Natural disasters; COVID-19 pandemic; Charitable giving; Donations; Generosity; Prosocial behavior; Card transactions; Baltics; Estonia; Latvia; Lithuania.

JEL Classification Numbers: D10, D12, D64, H41, I12.

Data Availability Statement: The data that support the findings of this study are obtained from Swedbank and the Oxford Covid-19 Government Response Tracker database.

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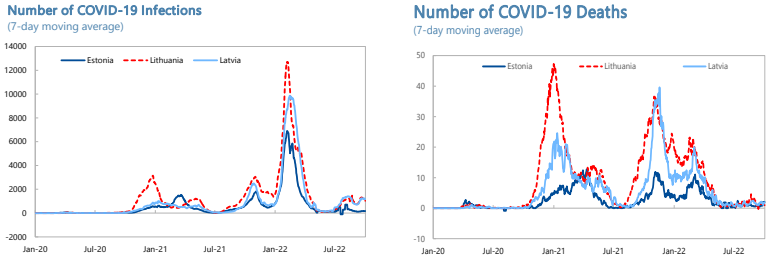
1. INTRODUCTION

Humans are usually compassionate, caring and empathetic toward others, but are we really hard-wired for altruism when a disaster hits? Disasters provide a natural experiment to test altruistic behavior. The COVID-19 pandemic has been a truly global disaster, with considerable human losses and suffering and widespread economic disruption. Over the past three years, the number of COVID-19 cases has reached over 760 million, resulting more than 7 million deaths across the world.[1] The extensive containment and mitigation measures designed to restrict mobility and slow down the spread of COVID-19 caused the largest post-war recession (Coibon, Gorodnichenko, Weber, 2020; Eichenbaum, Rebelo, and Trabandt, 2020; Fornaro and Wolf, 2020; Hassan and others, 2020; Ludvigson, Ma, and Ng, 2020; Cevik and Miryugin, 2021). At the same time, governments implemented policy measures to cushion the consequences of the pandemic and stimulate economic recovery. As a result, the pandemic has had largely heterogeneous effects across the world, reflecting the varying degree of exposure to the virus, overall level of preparedness, and capacity for adequate public response. In this context, an interesting question emerges: has the pandemic made human beings more benevolent and charitable? To answer this query, I empirically investigate how the spread of COVID-19 has affected aggregate levels of charitable donations as a percent of total spending in three European countries (Estonia, Latvia, and Lithuania), using a novel dataset of high-frequency data over the period January 1, 2019 to October 2, 2022, during which the number of COVID-19 cases and deaths moved in waves.

FIG. 1. COVID-19 Infections and Dates



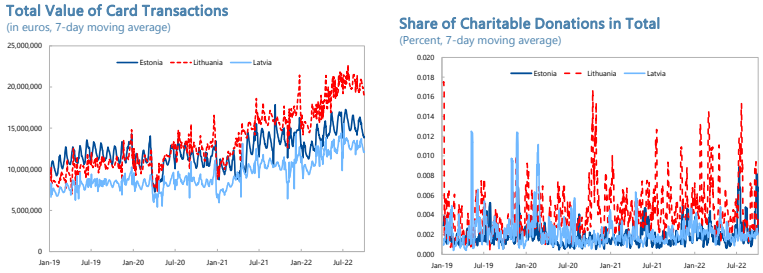
Source: OxCGRT; author's calculations.

There is evidence that people exposed to disasters tend to behave more philanthropically, but most studies rely on surveys and experimental data. There is a rich literature studying the effects of unexpected events such

[1]The latest figures can be found at the WHO COVID-19 Dashboard: https://covid19.who.int/.

as natural disasters and wars on human behavior across countries and throughout history. Some studies show that societies experiencing severe disasters exhibit an increase in prosocial behavior and donations (De Alessi, 1967; Dacy and Kunreuther, 1969; Douty, 1972; Frey and Meier, 2004; Landry and others, 2006; Whitt and Wilson, 2007; Shangand Croson, 2009; Solnit, 2009; Rao and others, 2011; DellaVigna, List, and Malmandier, 2012; Bauer and others, 2016; Becchetti, Castriota, and Conzo, 2017; Caló-Blanco and others, 2017; Cassar, Healy, and Kessler, 2017; Deryugina and Marx, 2021; Méon and Verwimp, 2022). Most of these empirical studies, however, focus on localized devastations (instead of countrywide or global shocks) and use surveys or experimental data (instead of actual transactions) to track post-disaster donations to charities compared to non-devastated areas. There is now a nascent but developing branch of the literature on how the COVID-19 pandemic has affected charitable donations (Grimalda and others, 2021; Adena and Harke, 2022; Branas-Garza and others, 2022; Friedman, Gershon, and Gneezy, 2022; He and others, 2022), but these studies — with mixed results — also rely mostly on online surveys and experiments. The main challenge is therefore to find a comprehensive dataset that covers the breakdown of consumer expenditures including charitable donations at high frequency. This paper makes a novel contribution to the literature by (i) combining a daily dataset of point-of-sale (POS) debit and credit card transaction and daily data on COVID-19 incidence and government interventions and (ii) conducting a real-time analysis of actual charitable donations in three countries during the COVID-19 pandemic in a regression framework.

FIG. 2. Charitable Giving in Card Transactions



Source: Swedbank; author's calculations.

There is significant variation in charitable donations across the Baltics, but the level of generosity appears to have declined after the pandemic.[2]

[2]According to the World Giving Index compiled by the Charities Aid Foundation, Estonia, Latvia, and Lithuania rank 34th, 74th, and 77th in monetary donations out of 119 countries, respectively.

During the first phase of the pandemic in 2020, the total amount of card transactions in three Baltic countries declined by an average of 2.5 percent year-on-year in the second quarter, after growing at an annual rate of 10 percent in the first quarter (Figure 2). Afterwards, there has been an accelerating recovery in the volume of card transactions, albeit with occasional dips and peaks due to the waves of the pandemic and various policy measures introduced by the governments, but the growth pattern was not homogenous across the Baltics. While Estonia suffered a contraction of 4 percent in debit and credit card transactions in 2020, Latvia and Lithuania experienced an increase of 2 percent and 14.5 percent, respectively. There has also been considerable variation in the pace of recovery, with Lithuania taking the lead with 26.2 percent in 2021 compared to 17.9 percent in Latvia and 12.3 percent in Estonia. A similar pattern emerges with regards to aggregate levels of charitable donations as a share of total spending, which registered a significant decline from an average of 0.1164 percent in 2019 to 0.0028 percent in 2020 and 0.0029 in 2021. However, there is significant variation in the level of generosity across the Baltics. While the share of charitable contributions in total spending declined from 0.0019 percent to 0.0016 percent in Estonia and from 0.3453 percent to 0.0044 percent in Latvia, there was an increase from 0.0019 percent to 0.0023 percent in the case of Lithuania.

The empirical analysis shows that the COVID-19 pandemic and government interventions have no significant effect on how much people contribute to charities. Across all specifications, I consistently find a positive coefficient on the COVID-19 variable, which could imply that an increase in the number of infections or deaths prompt more charitable donations. But these coefficients do not reach statistical significance at conventional levels and indicate only a weak degree of association between the pandemic and charitable giving. I also find that government interventions have negative effects on charitable giving as measured by card transactions, but these factors too are not statistically significant. All in all, a higher preference for precautionary savings in the midst of a global shock appears to outweigh altruistic behavior. In other words, uncertainty about health and economic outcomes as a consequence of the pandemic and non-pharmaceutical interventions (NPIs) such as mandatory lockdowns and mobility restrictions might have altered people's preferences for charitable giving and made it difficult to use physical cash for donations. At the same time, economic support measures designed to strengthen the social safety net reduce might have changed how people perceive the need of others during crisis when the government provides direct income transfers.

The remainder of this paper is structured as follows. Section II provides an overview of the data used in the empirical analysis. Section III describes

the econometric methodology and presents the findings. Finally, Section IV summarizes and provides concluding remarks.

2. DATA OVERVIEW

The empirical analysis is based on a balanced panel dataset of daily observations of charitable giving, COVID-19 cases and deaths, and policy measures. The underlying data used to construct aggregate levels of charitable donations by debit and credit card transactions are acquired from Swedbank — one of the largest retail banks in the Baltics accounting for about half of POS transactions.[3] This real-time card transaction data cover the period from January 1, 2020 to October 2, 2022 and include 33 spending categories including "religious and charitable giving" in card transactions.[4] POS data used in this paper exclude cash withdrawals, but contain both in-person and online transactions. The daily number of new COVID-19 infections and deaths is drawn from the Oxford Covid-19 Government Response Tracker (OxCGRT) database. The OxCGRT also systematically collects information on several different common policy responses governments have taken, records these policies on a scale to reflect the extent of government action, and aggregates these scores into a suite of policy indices (Hale and others, 2021). This paper uses the following composite policy indices: (i) stringency index; (ii) containment and health index; (iii) economic support index; and (iv) overall government response index. Each of these indices report a number between 0 to 100 that reflects the level of the government's response along certain dimensions. While the index is a measure of how many of the relevant indicators a government has acted upon, and to what degree, it cannot say whether a government's policy has been implemented effectively.

Summary statistics show considerable heterogeneity in charitable donations and pandemic-related factors across countries and over time. As presented in Table 1, the mean value of charitable donations as a share of total debit and credit card transactions is 0.0020 percent over the sample period, with a minimum of 0 and a maximum of 0.0348 percent. Over the course of the pandemic, the aggregate level of charitable giving in the Baltics declined from an average of 0.1164 percent in 2019 to 0.0028 percent in 2020 and 0.0029 in 2021. However, there is significant variation in the level of generosity across countries. While the share of charitable contributions in total spending declined from 0.0019 percent to 0.0016 percent in Estonia

[3]Swedbank does not share the details of the credit card transaction data because of confidentiality. As the largest commercial bank in the Baltics, its customer base should be reasonably representative of the population.

[4]Cevik (2023a; 2023b) uses daily debit and credit card transactions to estimate the impact of the COVID-19 pandemic on consumer spending in the Baltics.

and from 0.3453 percent to 0.0044 percent in Latvia, there was an increase from 0.0019 percent to 0.0023 percent in the case of Lithuania.

TABLE 1.

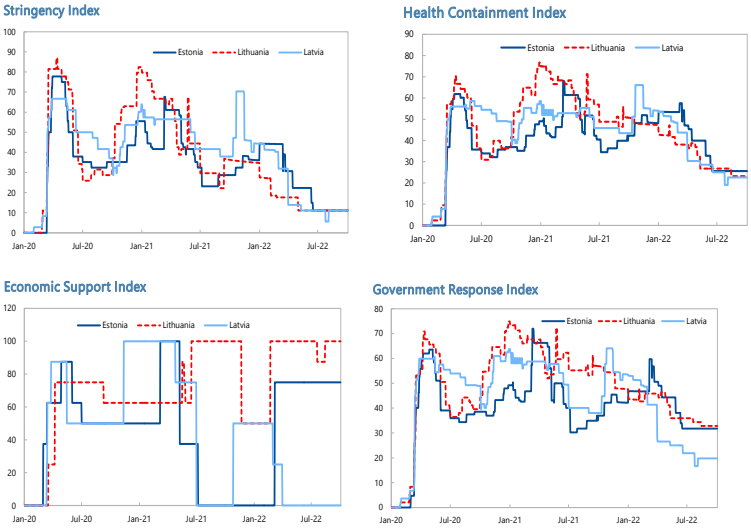
Summary Statistics

Variable	Observations	Mean	Std. dev.	Minimum	Maximum
Share of charitable donations in debit and credit card transactions	3018	0.0020	0.0027	0	0.0348
COVID-19					
infections	3018	923	1828	0	15412
Deaths	3018	6	9	0	79
Stringency index	3018	36.6	20.7	0.0	87.0
Containment and health index	3018	42.4	16.4	0.0	76.7
Economic support index	3018	53.0	35.7	0.0	100.0
Govement response index	3018	43.7	16.5	0.0	74.9

Source: Swedbank; OxCGRT; author's calculations.

The number of new COVID-19 cases varies from a minimum of 0 to a maximum of 15,412, with a mean value of 923 during the sample period. Compared to many other countries, the number of new deaths caused by COVID-19 was limited to 6 in the Baltics, with a minimum of 0 and a maximum of 79. While there is significant variation among three Baltic countries, the rise and fall of COVID-19 infections and deaths have followed a similar pattern, which is also the case if it is measured as a share of population. Policy variables used in the empirical analysis tend to move in tandem with some variation across three countries and over the sample period: (i) the mean value of the stringency index of NPIs is 36.6, with a minimum of 0 and a maximum of 87; (ii) the mean value of the containment and health index is 42.4, with a minimum of 0 and a maximum of 76.7; (iii) the mean value of the economic support index is 53, with a minimum of 0 and a maximum of 100; and (iv) the mean value of the overall government response index is 43.7, with a minimum of 0 and a maximum of 74.9. As shown in Figure 3, although Baltic governments have responded to the pandemic in similar ways, there are still significant differences in the extent and design of policy measures, especially in providing economic support. Finally, to avoid spurious estimation results, it is necessary to analyze the time-series properties of the data by conducting panel unit root tests. I check the stationarity of all variables by applying the Im-Pesaran-Shin (2003) procedure, which allows for cross-country heterogeneity and is widely used in the empirical literature. The test results indicate that the variables are stationary in levels after logarithmic transformation.

FIG. 3. Health and Economic Policy Responses to the COVID-19 Pandemic



Source: OxCGRT; author's calculations.

3. EMPIRICAL STRATEGY AND RESULTS

The objective of this paper is to provide a real-time analysis of charitable contributions during the pandemic in a panel of three Baltic countries. The effects of the COVID-19 pandemic and government interventions on charitable giving is investigated in a panel setting according to the following baseline specification:

$$\log(\text{charity}_{i,t}) = \beta_1 \log(\text{covid}_{i,t}) + \beta_2 X_{i,t} + \eta_i + \mu_t + \varepsilon_{i,t} \qquad (1)$$

where $\text{charity}_{i,t}$ denotes the share of charitable contributions in total debit and credit card transactions in country i and time t; $\text{covid}_{i,t}$ represents the number of new COVID-19 cases or deaths; and $X_{i,t}$ is a vector of health and economic policy measures introduced as a response to the pandemic, including the stringency index, the containment and health index, the economic support index, or the overall government response index. The η_i and μ_t coefficients denote the time-invariant country-specific effects and the time effects controlling for common shocks that may affect charitable donations across all countries in a given period, respectively. $\varepsilon_{i,t}$ is an idiosyncratic error term. To account for possible heteroskedasticity, robust standard errors are clustered at the country level.

Empirical results indicate that the pandemic and government interventions have no significant effect on how much people contribute to charities.

TABLE 2.

COVID-19 Infections and Charitable Contributions: Baseline

	Share of charitable contributions in total spending				
	(1)	(2)	(3)	(4)	(5)
COVID-19 infections	0.000153	0.000149	0.000011	0.000132	0.000012
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Stringency index	−0.000028				−0.000012
	[0.000]				[0.0000]
Containment and health index		−0.000240			
		[0.000]			
Economic support index			−0.000209		−0.000211
			[0.000]		[0.000]
Government response index				−0.000538	
				[0.000]	
Number of observations	2581	2581	2083	2586	2078
Number of countries	3	3	3	3	3
Country FE	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes
Adj R^2	0.56	0.56	0.55	0.56	0.55

Note: The dependent variable is the share of charitable contributions in total debit and credit card transactions. Robust standard errors clustered at the country level are reported in brackets. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.
Source: Author's estimations.

The baseline analysis, presented in Tables 2-3, shows that the pandemic shock — as measured by the number of new COVID-19 infections or deaths — does not have a statistically significant effect on the share of charitable contributions in total spending as measured by debit and credit card transactions. Across all specifications, I consistently find a positive coefficient on the COVID-19 variable, which could imply that an increase in the number of COVID-19 infections or deaths prompt more charitable donations. However, these coefficients do not reach statistical significance at conventional levels and indicate only a weak degree of association between the prevalence of COVID-19 and charitable giving.[5] I also find that government interventions — in the form of public health measures to contain the spread of the virus and economic support measures designed to assist businesses and households — have negative effects on charitable giving as measured by debit and credit card transactions, but these factors too are not statistically significant. In summary, with the baseline specification displayed in the column [5] of the tables including the prevalence of COVID-19, the

[5]The results remain broadly unchanged when I measure the severity of the pandemic with the new number of COVID-19 infections or deaths as a share of population or on a 7-day moving average.

TABLE 3.

COVID-19 Deaths and Charitable Contributions: Baseline

	Share of charitable contributions in total spending				
	(1)	(2)	(3)	(4)	(5)
COVID-19 deaths	0.000120	0.000121	0.000263	0.000139	0.000274
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Stringency index	−0.000050				−0.000121
	[0.000]				[0.000]
Containment and health index		−0.000080			−0.000121
		[0.000]			
Economic support index			−0.000425		−0.000448
			[0.000]		[0.000]
Government response index				−0.000424	
				[0.000]	
Number of observations	1846	1846	1463	1846	1463
Number of countries	3	3	3	3	3
Country FE	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes
Adj R^2	0.59	0.59	0.60	0.59	0.60

Note: The dependent variable is the share of charitable contributions in total debit and credit card transactions. Robust standard errors clustered at the country level are reported in brackets. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.
Source: Author's estimations.

stringency index of lockdown-style policies, and the economic support index, I find that that an increase in the number of new COVID-19 infections (or deaths) is associated with an increase in the share of charitable contributions in total spending, while government interventions lead to a decline in charitable giving. I confirm these findings by estimating the model in first differences, which yields a similar picture that the pandemic and government interventions have no significant effect on the share of charitable donations in total consumer spending, as presented in Table 4.

A higher preference for precautionary savings in the midst of a global shock appears to outweigh altruistic behavior. Using a comprehensive cross-country dataset of daily observations, I find no evidence that the COVID-19 pandemic and government interventions have statistically significant effects on how much people contribute to charities out of total spending as measured by debit and credit card transactions. The severity of the pandemic in terms of the number of infections or deaths in a country represents not only economic damages, but also adverse psychological effects throughout the society. The resulting uncertainty about health and economic outcomes manifests in larger precautionary savings and lower

TABLE 4.

COVID-19 and Charitable Contributions: First Differences

	Share of charitable contributions in total spending	
	(1)	(2)
COVID-19 infections	0.000224	
	[0.000]	
COVID-19 deaths		0.000501
		[0.000]
Stringency index	−0.000308	−0.002249
	[0.002]	[0.003]
Economic support index	0.003380	0.003478
	[0.002]	[0.001]
Number of observations	2022	1279
Number of countries	3	3
Country FE	Yes	Yes
Time FE	Yes	Yes
Adj R^2	0.56	0.60

Note: The dependent variable is the share of charitable contributions in total debit and credit card transactions. Robust standard errors clustered at the country level are reported in brackets. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.
Source: Author's estimations.

charitable contributions.[6] In this context, government interventions may have a magnifying effect: while lockdown measures designed to avoid the spread of infection limit the opportunity to make cash donations, economic support measures designed to strengthen the social safety net reduce the tendency to make charitable donations. In other words, government welfare programs appears to have crowded out private charitable donations during the COVID-19 pandemic, which is consistent with the existing literature (Abrams and Schmitz, 1978, 1984; Jones, 1983; Brooks, 2000; Andreoni and Payne, 2003; Garrett and Rhine, 2007).

4. CONCLUSION

The COVID-19 pandemic is a global public health crisis like no other, with more than 760 million infections and 7 million deaths across the world. There is evidence that people exposed to natural disasters tend to behave more philanthropically, but most studies rely on survey and experimental

[6]The dataset used in this analysis does not allow to calculate the personal savings rate as a share of disposable income, but aggregate data show an increase of over 50 percent in the household net savings rate in the euro area from 6.4 percent in 2019 to 13 percent in 2020.

data. This is also the case for a developing branch of the literature on how the COVID-19 pandemic has affected charitable donations. The main challenge is to find a comprehensive dataset that covers the breakdown of consumer expenditures including charitable donations at high frequency. This paper contributes to the literature by (i) combining a daily dataset of debit and credit card transaction and daily data on the prevalence of COVID-19 and government interventions and (ii) conducting a real-time analysis of actual charitable donations in three European countries during the COVID-19 pandemic in a regression framework.

Empirical results indicate that the COVID-19 pandemic and government interventions have no significant effect on charitable donations. I consistently find a positive coefficient on the COVID-19 variable, which could imply that an increase in the number of infections or deaths prompt more charitable donations as a percent of total spending in the Baltics (Estonia, Latvia, and Lithuania). But these coefficients do not reach statistical significance at conventional levels and indicate only a weak degree of association between the pandemic and charitable giving. I also find that government interventions have negative effects on charitable giving as measured by card transactions, but these factors too are not statistically significant. Overall, even though the dataset used in this analysis covers only card-based charitable giving, a higher preference for precautionary savings in the midst of a global shock appears to outweigh altruistic behavior. In other words, uncertainty about health and economic outcomes as a consequence of the pandemic and mandatory lockdowns and mobility restrictions might have altered people's preferences for charitable giving and made it difficult to use physical cash for donations.[7] On the other hand, economic support measures designed to strengthen the social safety net reduce might have changed how people perceive the financial needs of others during crisis when the government provides direct income transfers.

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[7]There is also empirical evidence from previous pandemics that consumers tend to change payment habits and reduce the use of cash during infectious diseases (Cevik, 2020).

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