



Disasters, donations, and tax law changes: Disentangling effects on subjective well-being by exploiting a natural experiment



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ABSTRACT

This study investigates (i) whether an increase in donations in the aftermath of disasters can mitigate the negative effects on subjective well-being (SWB), and if so, (ii) whether policy measures, such as tax law changes, can amplify this mitigating effect by providing further incentives for donations. To analyze these questions, we use data on the recent, impactful triple disaster on March 11, 2011 in Japan (3–11). Coincidentally, only three months after the disaster, a long-planned change in tax law was put into effect that allows higher tax deductions for charitable donations. Applying a moderated mediation analysis to a unique dataset, we are able to disentangle the total rise of donations into positive effects that are caused by the disaster itself and positive effects that are caused by the recent change in the Japanese tax law. The results of our study are as follows: First, we show that about 30% of the direct negative effect of 3–11 on SWB is mediated and mitigated by donations. Second, we show that the change in taxation law could have further mitigated the negative SWB effects of 3–11, if more people had been aware of it. However, since a large majority of the Japanese public had not even been aware of the tax law change, potential mitigating effects by increased donations have not been realized. As for policy implications, our results show that governments can create incentives for donations that not only support disaster reconstruction, but also mitigate the negative SWB effects of disasters.

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1. Introduction

This study sets out to investigate (i) whether an increase in donations in the aftermath of disasters can mitigate the negative effects on subjective well-being (SWB), and if so, (ii) whether policy measures, such as tax law changes, can amplify this mitigating effect by providing further incentives for donations.

The two research questions are derived by bringing together different strands of literature on the intertwined relationship between disasters, donations, SWB, and tax subsidies regarding donations.

Although several studies have provided evidence for negative SWB effects of disasters (Kimball, Levy, Ohtake, & Tsutsui, 2006; Metcalfe, Powdthavee, & Dolan, 2011) as well as for positive SWB effects of donations (Aknin, Dunn, Whillans, Grant, &

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Norton, 2013; Dunn, Aknin, & Norton, 2014), those findings have not yet been analyzed together. Empirical evidence of an increase in charitable donations after disasters (Brown, Harris, & Taylor, 2012) provides a strong rationale for looking at both effects in connection. That is, there are both positive and negative effects of disasters in the form of a negative direct effect on SWB, a positive direct effect on donations, and a positive indirect effect on SWB via donations. In other words, disasters entail not only negative but also positive effects on SWB through an increase in pro-social activities, such as donations. However, by omitting donations in SWB equations, existing studies have systematically underestimated the direct negative SWB effect of disasters.

In order to correct for this bias and fill the gap in the literature, we analyze the SWB effects of a recent, impactful disaster: the triple disaster that occurred on March 11, 2011 in Japan (3–11). The initial disaster, known as the *Great East Japan Earthquake*, triggered a large-scale tsunami causing more than 15,000 casualties, which in turn triggered the meltdown of the Fukushima Daiichi Nuclear Power Plant (Okada, Ye, Kajitani, Shi, & Tatano, 2011).

As a second contribution to the literature, we account for a recent change in Japanese tax law, allowing higher tax deductions for charitable donations. While several studies have provided mixed findings regarding the effect of tax law changes on charitable donations (see Adena, 2014 for a review of the literature), the effect of tax law changes in the aftermath of disasters has not yet been explored.

Applying a moderated mediation analysis using a unique dataset, we are able to disentangle the total rise of donations into positive effects caused by the disaster itself, and positive effects caused by the recent change in the Japanese tax law.

The results of our study are as follows: First, we show that about 30% of the direct negative effect of 3–11 on SWB is mediated and mitigated by donations. Second, we show that the change in taxation law could have further mitigated the negative SWB effects of 3–11, if more people had been aware of it. However, since a large majority of the Japanese public had not even been aware of the tax law change, potential mitigating effects by increased donations have not been realized.

As for policy implications, our results show that governments can create incentives for donations that not only support disaster reconstruction, but also mitigate the negative SWB effects of disasters. However, if they do so, policymakers are advised to follow the motto “do good and talk about it.” Without effectively communicating new incentive schemes to the public, they might not be worth the effort in the first place.

2. Literature and hypotheses

Within the burgeoning field of happiness economics (Dolan, Peasegood, & White, 2008; Frey & Stutzer, 2002), there is a small but growing strand of research on the SWB effects of disasters. Most studies report negative effects on the population in the respective country or area (Carroll, Frijters, & Shields, 2009; Kimball et al., 2006; Kountouris & Remoundou, 2011; Luechinger & Raschky, 2009). Recent studies have also found that distantly remote disasters can have negative effects on populations in other countries (Metcalf et al., 2011), even when a similar disaster seems geographically impossible in that country (Goebel, Krekel, Tiefenbach, & Ziebarth, 2015). One recent disaster of exceptional magnitude and scope as well as with global repercussions is 3–11 in Japan.

Although there are a number of studies available on the effects of 3–11 in Japan, they report inconclusive results. Using an online sample of younger people, Uchida, Takahashi, and Kawahara (2014) find no statistically significant effect on people's happiness on average. However, differentiating between people who did and did not think about the earthquake when responding to the happiness question, they find that the former show significantly higher levels of happiness after 3–11. Ishino, Ogaki, Kamesaka, and Murai (2012) analyze retrospectively perceived changes in happiness levels after 3–11. Nationwide they find that 60% of the respondents do not report a change, while 35% report an increase and only 5% report a decrease in their happiness level. Nevertheless, their regression analysis still shows a significant tendency that those living in the disaster area as well as in the Kanto area around Tokyo are more likely to report a decrease in individual happiness. On collecting data on SWB two to seven weeks after 3–11, Ohtake and Yamada (2013) find robust and large geographical heterogeneity between the disaster area and non-disaster areas in unhappiness. They conclude that “contrary to expectations,” their findings suggest that, “overall, Japanese society was not mired in unhappiness” (Ohtake, 2013, p. 4). Nevertheless, they find that news coverage of the earthquake was negatively related to happiness in Sendai, a city within the disaster area. In contrast to this result, Sugano (2015) finds no evidence that the psychological well-being of older adults living in Sendai changed compared to the pre-disaster level. Tiefenbach and Kohlbacher (2015) analyze the immediate SWB effects of 3–11 up to two weeks after the disaster. While they find no evidence for a nationwide drop in happiness in the direct aftermath of 3–11, they report a negative relationship between happiness and proximity to Fukushima after the disaster. Using a different dataset, similar results are reported by Rehdanz, Welsch, Narita, and Okubo (2015), who compare happiness levels of respondents in January 2011 and January 2012. Overall, we can conclude that, although the literature reports inconclusive findings on the SWB effects of 3–11, they are consistent in that neither study finds significant negative nationwide effects of the disaster.

Given that (i) the body of international studies shows unequivocal evidence that disasters in general are associated with drops in SWB, as well as that (ii) some studies find negative SWB effects of 3–11 in countries remote from Japan (Goebel et al., 2015; Welsch & Biermann, 2014), we still expect the disaster to have negative effects on SWB in Japan. However, at the same time we assume that the disaster may have also had positive effects on SWB, which might be partly responsible for the inconsistent findings in the literature. Nevertheless, overall we expect the direct effect of 3–11 to be negative.

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