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Center for Research in Economics, Management and the Arts

# Volunteering and life or financial shocks: Does income and wealth matter?

Working Paper No. 2014-14

# Volunteering and life or financial shocks:

## Does income and wealth matter?

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### Abstract

Volunteering is a dominant social force that signals a healthy state. However, although the literature on volunteering is extensive, knowledge on how life's discontinuities (life event shocks) affect volunteering is limited because most studies work with static (cross-sectional) data. To reduce this shortcoming, we use longitudinal data from Australia (HILDA) that tracks the same individuals over time to assess how individuals from different income and wealth groups respond to life and financial shocks with respect to volunteering. Although both income and wealth can act as buffers against life shocks by providing stability and reducing vulnerability—which decreases the need to actually change behaviour patterns—we observe more heterogeneity than expected and also stickiness at the lowest income levels. Response delays in post-shock volunteering also suggest that volunteering habits may be driven and influenced by strong commitment and motivation that are not shattered by life or financial shocks. In fact, the amount of time spent volunteering tends to increase after negative income shocks and decrease after positive income shocks.

*JEL classification:* D64, J22, D31, Z13, N37

*Keywords:* volunteering, life event shocks, financial shocks, income, wealth, habits, panel, Australia

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## **Introduction**

During the 20<sup>th</sup> century, volunteering was rediscovered as both an alternative social force (Salamon and Sokolowski, 2001) and an important source of labour and initiative for the charitable or non-profit sector, which is responsible for substantial economic activity (Freeman, 1997). For example, in 2006–07, non-profit institutions in Australia accounted for 4.1 per cent of the total GDP.<sup>2</sup> Since then, the topic has also attracted interest in the political arena because volunteer labour can replace work previously carried out by government agencies (Janoski et al., 1998). The non-profit sector, in particular, besides being an important source of diverse ideas, is a valuable channel for providing minorities with public goods (Tuckman and Chang, 1991).

Yet, even though the definition of volunteering is straightforward – ‘any activity in which time is given freely to benefit another person, group, or organization’ (Wilson, 2000, p. 215) – the action itself has been classified as a complex phenomenon. As a result, the topic has been researched in most social science fields (Katz and Rosenberg, 2005), although past work has been criticized as needing more cross-fertilization and collaboration to overcome disciplinary barriers (Smith, 1994, p. 257). In practical terms, voluntary work is performed without monetary reward, creating social outputs that would otherwise require financial resources. Such cooperation becomes very powerful when employed to collectively provide public goods and apply pressure for solving externalities (Torgler et al., 2010) or when helping

to foster social well-being (Reed and Selbee, 2000). Volunteering is thus both economically and socially significant (DeVoe and Pfeffer, 2007).

In particular, volunteering can be classified as an economic activity because it involves an exchange, (Unger, 1991), a trade that exchange theory suggests generates a net benefit. For example, parents are more likely to start volunteering in school communities when their children enter school, some may volunteer because they have received help in the past or anticipate needing it in the future, and volunteer work may itself induce further benefits such as socialization, solidarity or compensation for deprivation experienced in paid employment (Wilson, 2000). In addition to benefitting the community, volunteering also increases the well-being of the volunteers themselves (Thoits and Hewitt, 2001). Hence, many volunteering activities are classified as ‘serious leisure’ with a distinct set of personal rewards, including personal enrichment, self-actualization, self-expression, self-image, self-gratification, recreation and financial returns, as well as social rewards like social attraction and group accomplishment (Stebbins, 1996).

According to traditional economic theory, people volunteer (at a particular time) because the marginal benefits from volunteering are higher than those from either working for wages or pursuing leisure activities (e.g., Freeman, 1997). Traditionally, because volunteer labour is classified with an explicit price of zero (Menchik and Weisbrod, 1987), research into its opportunity costs has measured it implicitly via hourly compensation in the labour market (Brown, 1999a). It could thus be inferred that those with higher incomes are less likely to volunteer because of higher opportunity costs. The empirical evidence, however, indicates the opposite: those with higher opportunity costs of time because of such factors as higher family income, higher education and more children actually volunteer more often (see, e.g., Freeman, 1997; Hayghe, 1991; Wilson and Musick, 1998). High income earners in particular are in a

better position to outsource household activities, freeing up time to volunteer. They also tend to have more social resources (e.g., a larger social network), are more likely to be asked to volunteer and are more likely to have the social skills that allow them to feel comfortable volunteering, which could explain why those with higher socioeconomic status volunteer more (Wilson and Musick, 1998; Wilson, 2000).

It is less well understood, however, how those with different income and wealth conditions respond to life and financial shocks – sudden events that significantly challenge one’s status quo – with respect to changes in volunteering. One reason may be that identifying post-shock changes in time spent volunteering requires longitudinal data. Interestingly, however, the *dynamics* of volunteering have also been largely neglected, primarily because researchers tend to work with cross-sectional data sets like the General Social Survey or the World Values Survey. Such relatively static data provide no insight into how (drastic) changes in individual circumstances lead to behavioural change. However, investigating the dynamics of the volunteering relation moves beyond mere understanding of its *structure*, towards knowledge about its *process*. In particular, it would be valuable to explore the extent of volunteering under life-changing conditions that distort the individual’s social equilibrium and require trade-offs between individual commitments and sacrifices. In this paper, to offer some guidance on how such situations might be handled, we assess the effects of such disturbances by exploring the factors that buffer or shape responses to them.

In particular, individual shocks can produce a range of emotions, which, because of their crucial selection function in the environment, can act as a way of channelling attention (Simon, 1983). Hence, by exploring the behavioural reactions after such shocks, we can better conceptualize and understand an individual’s ‘homeostatic balance’. Moreover, although shocks can also shatter values, things or acts that are chosen or desirable, it is unclear whether they

generate behavioural responses when strong values underlie the initial engagement. In any case, people may become habituated to certain behaviours, may ‘become used to and comfortable with social routines and situations’ (Janoski et al., 1998, p. 497). Continuity theory, for example, suggests that individuals maintain well-being by maintaining established patterns of behaviour during status transitions and throughout life (Smith, 2004) in order to preserve role stability (Utz et al., 2002). As a result, patterns of past behaviour should not be ignored. Nor should the human organism be regarded merely as a passive stimulus-response machine; rather, it is an intrinsically active system that creates and shapes the environment in a flow of processes effectuated by feedback mechanisms and arrangements (von Bertalanffy, 1981). Hence, examining changes in time allocated to volunteering provides an interesting context in which to understand the stability of behavioural patterns or values.

Because income and wealth can shape individual possibility sets or constraints, as well as the differing human responses to shocks, in this analysis, we use these variables to classify individuals into different groups. The relevance of wealth, especially, has been somewhat neglected in studies on either the amount of time spent volunteering or on life-event shocks. In particular, those with high incomes may not necessarily have the largest wealth accumulation, so the two variables need to be differentiated. Moreover, although economists have explored in detail the response of consumption to income changes (see, e.g., Altonji and Siow, 1987), other aspects beyond consumption (such as volunteering) have only received limited attention.

Both income and wealth can act as a buffer in life event shocks, reducing the necessity of actually changing behavioural habits by providing stability and reducing vulnerability. In particular, wealth can be seen as an insurance substitute for income shocks or job loss that mitigates the shock’s destabilizing effects. Individuals with such a buffer live in a more comfortable environment, one that gives them the ability and means to volunteer while still

satisfying their own needs (Parboteeah et al., 2004). Hence, the extent to which post-shock income and wealth matter could be an indicator of how strong the motivations are to volunteer. If volunteering has a strong moral dimension (moral obligation), it may result in behavioural ‘stickiness’ throughout different income and wealth groups. We therefore hope that a dynamic analysis will throw important new light on this facet of human architecture.

## **The act of volunteering**

Volunteering is one aspect of the broader notion of social capital (Torgler et al., 2010), which in the Putnamesque view is especially noted for its persistence, for its slow accumulation ‘shaped by historical legacies in a long-lasting manner’ (Fidrmuc, 2014, p. 3). However, as Fidrmuc points out, little is known about how social capital is formed or rebuilt or how quickly it depreciates. He suggests that, based on his analysis of regions with a longer time perspective (several generations), social capital is in fact less persistent than commonly believed and rebuilds itself relatively quickly after socio-political developments or migrations. Hence, social capital – and volunteering in particular – can change over time because of changes in such factors as secularization, educational investment, the labour market and women’s emancipation (Van Ingen and Dekker, 2011).

In the Judaeo-Christian tradition, voluntarism is seen as doing good work (Unger, 1991), and strong evidence does indeed exist that the allocation of time to volunteering cannot be explained without considering the volunteers’ concerns for others and the satisfaction they gain from participation (Brown, 1999a). In fact, altruism and social reputation (image) are key factors motivating people to volunteer (Carpenter and Myers, 2010): as Van de Vliert et al.

(2004) neatly point out, ‘worldwide, volunteers are driven by a complex fabric of self-serving and altruistic reasons for doing unpaid work’ (p. 69).

In the social sciences, however, different fields have used different theoretical classifications to understand the motivations behind volunteering. Economists, for example, use consumption models, which treat time donation as a normal utility-bearing good, or investment models, which assume that volunteering raises future earnings or employment power and is thus not a utility-bearing good in itself (Menchik and Weisbrod, 1987). Additional models proposed in the literature are based on such aspects as the desire to increase public goods, altruism, warm feelings when volunteering (gratification), prestige and reputation, and enjoyment of the interaction with other volunteers (Prouteau and Wolff, 2008). Psychology, on the other hand, conceptualizes motivations as functions; namely, values (volunteering in order to express or act on important values), understanding (learning about the world or exercising skills that often go unused), enhancement (growing and developing psychologically), career enhancement (gaining career-related experience), social ties (strengthening social relationships) and protection (reducing negative feelings such as guilt and addressing personal problems; Clary and Snyder, 1999, p. 157). Meier and Stutzer (2008),<sup>3</sup> however, classify volunteering into intrinsic motivation, in which individuals care about the recipient’s utility and benefit intrinsically from the work (e.g., enjoyment), and extrinsic motivation, in which they benefit from the investment of human capital, increase their social network, and/or receive social approval (pp. 41–42).

In terms of reaping some reward or compensating for job deficiencies (Miller, 1985), volunteering has been shown to have a positive effect on income (e.g., Day and Devlin, 1998), although causality issues are a challenge in any such analysis. Day and Devlin (1998), for example, using Canadian data, show that on average volunteers earn about 7 percent higher incomes than non-volunteers. These authors also emphasize that in addition to the increased

network of professional contacts that may help volunteers secure better paid jobs, volunteers may also acquire useful productivity skills (e.g., from on-the-job training; Mueller, 1975). These skills augment their human capital stock and build a portfolio of better quality work experience (Ziemek, 2006), which employers can use as a proxy for employee personality type (Katz and Rosenberg, 2005). Nevertheless, despite these human capital effects, there is also evidence that engagement does not mitigate the negative impact of unemployment on personal well-being (Helliwell et al., 2007).

The possible motives for volunteering, therefore, are many (Clary and Snyder, 1999), but because of insufficient structure or order, the literature throws little light on the relative importance of these different motivations and how they interact (Matsuba, 2007). We detail them here only because the stronger any of these factors is, the less likely individuals are to react to negative life and financial shocks.

## **Life and financial shocks**

The psychological implications of life and financial shocks may include a threat to security or locus of control and/or a decrease in self-esteem or feelings of competence. This latter, in turn, may reduce engagement in collective actions (Unger, 1991). To explore the influence of income and wealth on individual reactions to such negative events, we examine the following types of shock<sup>4</sup>:

- 1) *Finances*:<sup>5</sup> Although the literature on income and volunteering suggests that improved (worsened) finances can increase (decrease) volunteering, we do not know how different income or wealth groups react to such changes. A high level of income and wealth

conditions may guarantee enough stability for the maintenance of former behavioural patterns. A small *relative* improvement or worsening of the situation may produce limited behavioural changes for high income or wealth groups. On the other hand, lower income and wealth groups may either benefit or suffer substantially from any changes that lead to more pronounced behavioural reactions. Because the data show only whether a respondent experienced a major improvement or worsening without detailing the level of change, we explore different income shocks directly.

- 2) *Recent marriage*: A change in marital status may produce substantial emotional or day-to-day lifestyle adjustments, or even major disruptions in the personal life. Volunteering may decrease after marriage, particularly during the initial adjustment period (Nesbit, 2012; Stoker and Jennings, 1995). On the other hand, today it is common for unmarried couples to cohabit, meaning that the marriage minimally affects their daily routine and may not be experienced as a significant interruption that requires an adjustment period. Changes may occur, however, because of learning experiences, collective decision making, or spousal influence (Stoker and Jennings, 1995). For example, marrying someone who also volunteers reduces the likelihood of ceasing to volunteer (Butrica et al., 2007).
- 3) *Disruption of the family/household structure*: For this event type, we analyse the impact of two disruptive events: death of a spouse and spousal separation. The first is recognized as one of the most stressful of all life events, one requiring a greater psychological and behavioural adjustment than any other life transition (Utz et al., 2002). In fact, losing any partner can be traumatic and have wide-ranging implications (Nesbit, 2012), threatening internalized habits and attitudes and straining social relationships (e.g., being a fifth wheel among married friends; Utz et al., 2002). There is

also evidence that families volunteer together (Nesbit, 2013), that the partnership or family acts as a 'role center' with clearly defined roles and tasks (Knoke and Thompson, 1977; Sundeen, 1990). The household structure also influences time availability and transfers values through motivation and socialization processes, acting as a catalyst for volunteering (Nesbit, 2013). In general, separation interrupts and changes family routines and leads to psychological shifts and adjustments that arise from stress and worry (Nesbit, 2012). Separation that involves children is an obstacle for parental volunteering because of both time and energy constraints (particularly for the primary caretaker), as well as psychological distress (Nesbit, 2013). On the other hand, the psychological distress may have been greater before the separation, although separated couples without children who remain alone may have less available time while single-handedly maintaining a household. Particularly relevant for our study is that separation can lead to financial stress (Nesbit, 2012).

Whereas the above factors may reduce volunteering, others can serve as coping mechanisms (Nesbit, 2012). Therefore, we also explore the outcomes of reconciling with a partner. Such reconciliation can affect volunteering through the partners' need to spend more time together and invest in or prioritize the relationship more highly, leaving less time for other activities. On the other hand, volunteering can also be a joint activity that can support the relationship.

The birth of a child or becoming pregnant, although usually regarded as positive events, also force the parents to adjust their lives, schedules and routines, thereby taking time and resources away from volunteering (Nesbit, 2012). Even those with fewer financial restrictions, who have the resources to hire outside help, may decide to dedicate their own time to childrearing.

- 4) *Death of a relative/friend*: Although such events undoubtedly have a psychological impact, their consequences are difficult to predict because our data include no details on how close the respondent was to the relative. We also do not know whether the respondent was involved in caregiving for the deceased, a time-consuming activity that can crowd out other activities and constrain volunteering. On the other hand, having more time left once caregiving is no longer needed can lead to paid employment, which also reduces the amount of time available for volunteering. The death of a friend has different consequences in that the respondent was by definition close to the deceased and will thus experience psychological pain. This suffering may lead to a reorientation of certain activities, particularly if volunteering efforts were carried out jointly. The death of a friend may also increase awareness of the importance or vulnerability of life itself, which could lead to reprioritization, although it is unclear whether such a process would lead to more or less volunteering.
- 5) *Injury and victim of violence, property crime*: These incidents can have physical and psychological implications, such as (temporarily) reducing the ability to actually perform voluntary duties or generating other transaction or financial costs (e.g., replacement of lost property or funds not covered by insurance). The psychological shock, however, may lead people to either seek out social contact as a coping mechanism or avoid it. Hence, Van Duch (1994) suggests that volunteering can help individuals overcome the emotional and physical scars from an accident, meaning that it might also help restore self-confidence and purpose in life.
- 6) *Moving house or changing job*: Although moving house can be the result of myriad factors (e.g., separation, household increase or decrease, change in financial situation, personal taste), it is often closely associated with the employment situation. Whatever

the reason, it is generally associated with transaction and adjustment costs. At the same time, however, it may offer an opportunity to develop new social relationships, while the need to orient to the new local environment may increase the incentive to be active in the community through volunteering.

The most problematic employment change is probably job loss, which requires workers to reorient their lives and search for a new job while dealing with negative psychological experiences, such as a reduction in social contacts that can lead to social isolation (see Strauss, 2008) or withdrawal (Russell, 1999). Yet being unemployed also reduces the opportunity costs of volunteering and can serve as a gateway to new employment, making volunteering more attractive as an investment strategy.<sup>6</sup>

Unemployed volunteers gain experience in the expectation that enhanced human capital will increase their labour market value and raise the probability of employment (Polidano et al., 2009). Nevertheless, having to take care of one's own situation may take precedence over taking care of others.

One positive employment change is promotion, a reward for past work that may lead to higher expectations of future performance. Reactions, however, may depend on the person's goals. More involvement and higher responsibility may reduce the time available for other activities, thereby increasing the opportunity costs of volunteering. A new position may also require increased investment in social networking. On the other hand, if the promotion is linked to becoming tenured in the organization after a pre-promotion period characterized by exhausting and stressful overwork, it may seem an opportunity to rest on one's laurels for a while and engage in other activities. Finally, changing a job always incurs transaction costs in that the worker must become

accustomed and adjust to the new position, which requires an investment of resources and energy. Such investment may reduce willingness to volunteer.

- 7) *Incarceration*: Being in jail obviously reduces the opportunity to engage in paid employment, which makes volunteering more attractive (not least as an investment strategy). On the other hand, those released from jail may experience financial problems from being less employable, which may reduce their willingness to participate in unpaid activities. Volunteering, however, may allow offenders to improve their reputations and increase their social network and thus their employability.
- 8) *Retirement*. Retired people have become an attractive pool for volunteering because of rising life expectancy (Sherman and Shavit, 2012) and the growing number of seniors in good health (Caro and Bass, 1997) who are keen to be active (see Fischer et al., 1991) or productive in the community (Freedman, 1997). Obviously, retirement substantially increases the time available for other activities, and volunteering can fill an important gap for older people by reproducing the benefits of work through voluntary participation (Sherman and Shavit, 2012). In particular, volunteering can enhance life satisfaction and physical and mental well-being while generating social and economic value for those helped and the organizations involved (Mutchler et al., 2003). It also produces a feeling of competence (Okun et al., 1998). In fact, there is evidence that the number of volunteer hours increases after retirement and that retired people are more receptive to volunteering in the period immediately after retirement (Caro and Bass, 1997). Alternatively, retired people might receive fewer requests to participate in voluntary activities (Mutchler et al., 2003).

For the shocks discussed above, some of which are transitory and others more permanent, we expect any observable effects to be higher for the permanent or more severe

shocks. For example, Nesbit (2012) finds that the birth of a child decreases the probability of volunteering and the number of hours volunteered, while a death in the family has no statistically significant impact. Being widowed decreases the number of hours of secular volunteering but not the hours of religious volunteering, a result that remains robust across several different models. Being divorced has no observable effect on volunteering, although some evidence emerged that divorced men increase their hours of volunteering (unless they have children). Nesbit's (2012) data, however, cover no more than two time periods, whereas our study not only encompasses a longer time span and more life event shocks but also tests whether the handling of shocks may vary between poorer and richer individuals. Some shocks, particularly income shocks, may need poorer families to increase the labour supply.

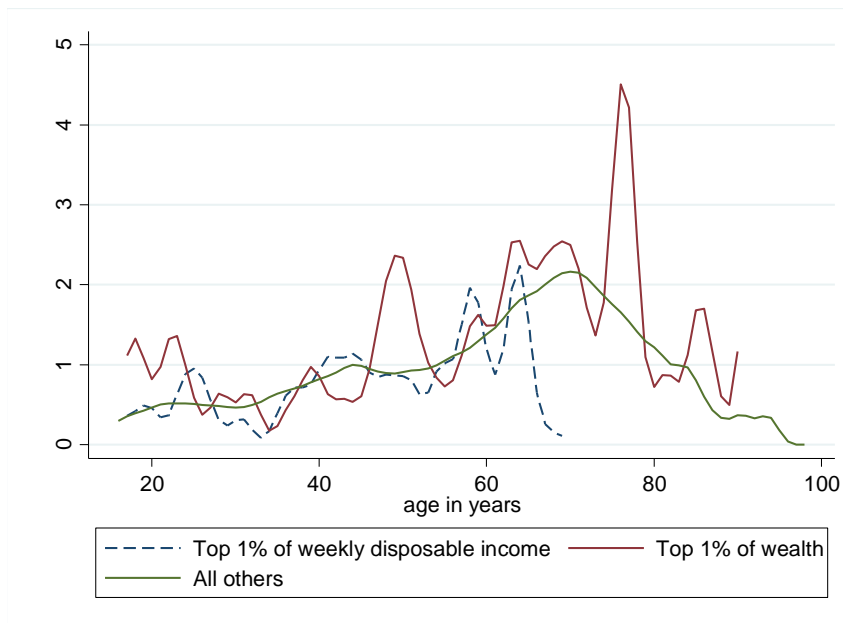
## **Data Set and Descriptive Results**

Our data are taken from waves 2 to 12 of the Household, Income and Labour Dynamics in Australia (HILDA) Survey,<sup>7</sup> an annual household-based panel survey begun in 2001 (HILDA, 2008) whose waves include about 13,000 individuals and 7,000 households. The survey is considered a highly representative sample of the Australian population with very high wave-to-wave retention rates; for example, 49 per cent of our sample of 129,244 individuals from 22,081 households have remained in this 11-year panel for 5 years or more (see Watson and Wooden, 2010, for further details). The advantage of HILDA is that it provides a precise behavioural measure of the time spent volunteering, thereby imparting a sense of individuals' volunteer experiences and their level of engagement. Our dependent variable is measured by the following question:

How much time would you spend on each of the following activities in a typical week?

Volunteer or charity work (for example, canteen work at the local school, unpaid work for a community club or organisation).

An initial analysis of the data indicates that 19 per cent percent of Australians volunteer their time to charity work, with an average volunteer time of 3.32 hours per week. Much of the volunteering, however, is done by 10 per cent of the population who volunteer 2.5 hours or more a week. A ‘generous few’ (1 per cent) volunteer 16 hours or more per week, and an even smaller group of these, the ‘very generous few’ (.05 per cent), volunteer 40 hours or more per week.



Notes: Time period: 2002–2012. The depicted series of time spent volunteering are smoothed across 5-year age bands (e.g., age 30 covers age 28 to 32) weighted by the elements of the fifth row of Pascal's triangle so that hours per week at age  $t$  equals:

$$t_{-2} * \frac{1}{16} + t_{-1} * \frac{4}{16} + t * \frac{6}{16} + t_{+3} * \frac{4}{16} + t_{+4} * \frac{1}{16}$$

Figure 1: Comparison of volunteering hours by age for the top 1 per cent of earners, the wealthiest top 1 per cent and the rest of the population

Our data indicate that more females (11 per cent) choose to volunteer than males (8 per cent), but on average, males volunteer more hours (5.26) per week than females (4.17). In Figure 1, we graph the age and volunteering relation for very high income and wealth earners in relation to other categories. The wealthiest 1 per cent volunteers more hours per week, especially after retirement when wealthy 65- to 80-year-olds volunteer twice the average number of weekly hours as the general population. Unlike the wealthy, however, the top 1 per cent income earners for many age categories allocate less of their time to volunteering. The difference is particularly strong for the post-retirement period (in relation to the general population). This observation is unexpected and not consistent with the positive relation reported in the literature. The top 1 per cent in income have a disposable income of \$270,834 or more per annum as opposed to the \$72, 723 available to the average Australian household.

According to Figure 2, however, the proportion of volunteers from the top 1 per cent in wealth or income is similar to that of the general population. Whereas 0.19 per cent to 0.33 per cent of this share engaged in volunteering behaviours in 2002–2012, those in the top 1 per cent in both income and wealth volunteered both more and less over time. In 2002, the proportion of volunteers (0.67 per cent) from this group was over twice that of the top 1 per cent in wealth, and nearly three times that of the top 1 per cent income earners (0.2 per cent) and the general population (0.19 per cent). Throughout all the years studied, the top 1 per cent in wealth, but not the top 1 per cent in income (green line), is more likely to volunteer than the reference group (all others). On the other hand, the volunteering patterns of the top 1 per cent in income are similar to those of the reference group.

As time progresses, however, the volunteering rate for both the wealthy and the high-income earners is highly volatile, possibly because of a low number of observations ( $N = 90$ ). This rate plummeted to its nadir in 2003 and then peaked at 0.7 per cent in 2007, nearly three times higher than for all other groups. Not surprisingly, since the wealth-destroying shock of the global financial crisis (GFC) in late 2007–2008, the level of volunteering by wealthy individuals with the highest income has reverted to the mean of all other groups. Perhaps the tougher economic conditions post GFC (a 21 per cent decline in average wealth in our sample between 2006 and 2010) motivated the top 1 per cent to reallocate their time to rebuilding wealth and restoring their high incomes.



Figure 2: A 2002 –2012 comparison of the percentage of volunteers from the top 1 per cent of earners, the wealthiest top 1 per cent and the general population

Not only do more individuals in the top 1 per cent in income and wealth volunteer, they appear to carry a heavier load in terms of hourly volunteering. Nevertheless, their volunteering

efforts have been highly volatile over time. As Figure 3 shows, between 2002 and 2010, the average volunteering hours of the top 1 per cent in income were similar to those of the general population, oscillating about 1 hour per week. Hence, while the top 1 per cent of earners reduced their volunteer hours post 2009, it was the top 1 per cent of the wealthy that progressively increased their social contribution by volunteering more hours per week over time.

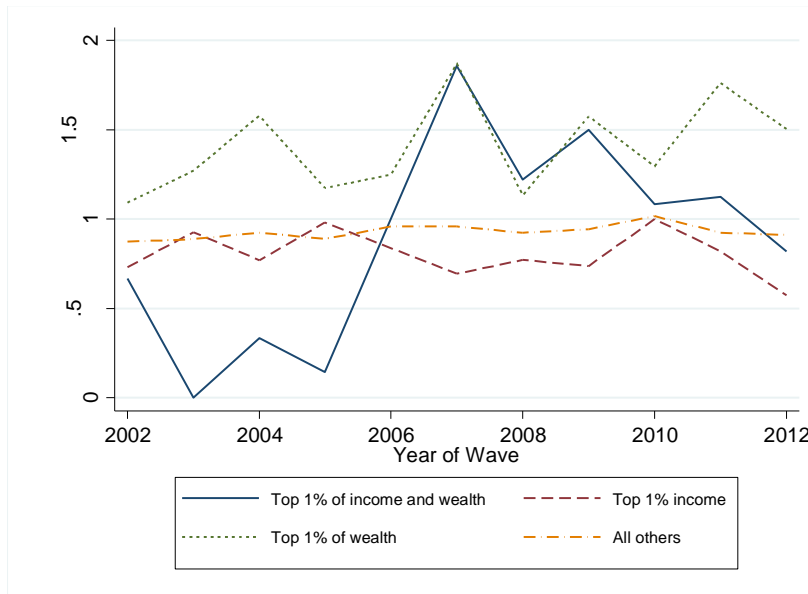


Figure 3: A 2002–2012 comparison of the average volunteering hours per week by the top 1 per cent of earners, the wealthiest top 1 per cent, and the general population

## Analytic models and results

Our four models of volunteering take the following form:

$$(1) \quad V_{it} = \alpha + \beta_1 X_{it} + \beta_2 L_{it} + \beta_3 Z_i + \varepsilon_i$$

$$(2) \quad V_{it} = \alpha + \beta_1 X_{it} + \beta_3 W_{it} + \beta_3 Z_i + \varepsilon_{it}$$

where

$V$	Volunteering hours per week
$\alpha$	Constant
$X$	Time-variant sociodemographic variables (e.g., income, health, employment status, relationship status)
$L$	Life event shocks (e.g., spouse died, finances improved or worsened, lost job)
$W$	Wealth variables (value of trusts, investments and family home)
$Z$	Individual fixed effects (e.g., personality, innate abilities)
$\varepsilon$	Error term.

Equation (1) includes volunteering by an individual ( $V$ ), which is a function of a constant ( $\alpha$ ), together with socioeconomic variables specific to the individual ( $X$ ) and life event ( $L$ ) shock dummy variables. Unobservables are manifested in the error term ( $\varepsilon$ ). The Tobit and OLS with fixed-effects regression results are listed in Table 1. Appendix A reports the descriptive statistics (Table A1), the (non-negligible) number of cases for each life event within our sample (Tables A2 and A3) and one specification with controls (Table A5). Equation (2) excludes life events and adds wealth ( $W$ ) to the demographic variables ( $X$ ) and time-invariant individual fixed effects ( $Z$ ) used in (1).

We first examine how volunteering behaviour changes for individuals in different income and wealth groups, which allows us to identify the volunteering behaviours of those who fall into the top 1 per cent in income or wealth and of the smaller group who are in the top 1 per cent for both income and wealth. We explore the following percentile groups defined by

the Australian Bureau of Statistics (ABS reference), as well as a little examined unique group – individuals in the top 1 per cent in income and/or wealth:

1: Lowest 10 percentile
2: >10 to 25th percentile
3: >25 to 50th percentile
4: >50 to 75th percentile
5: >75 to 90th percentile
6: >90 to 95th percentile
7: >95 to 99th percentile
8: Top 1%

Because the majority (81 per cent) of individuals do not volunteer,<sup>8</sup> we choose Tobit regressions that are left-truncated at zero as our key model. We will use the same controls throughout the entire empirical analysis. Overall, our analysis supports the findings from the literature. Employed, non-married, divorced or widowed individuals volunteer less often, and volunteering is positively related to having children and being female, married, more highly educated, healthier, older, retired, and surprisingly, unemployed. For example, on average, females volunteer an additional 0.26 hours per week and an additional year of education increases volunteering by 0.12 hours per week. However, rather than a positive effect of income on volunteering, we observe a statistically significant negative effect (see Table A4).

For the effect of life event shocks on volunteering (Table 1), we find that shocks like moving house, being promoted, getting married, becoming pregnant or having a child – all events that interfere with an individual’s free time – reduce volunteering. The same is true for events that interrupt normal life, such as the death of a spouse, job loss, job change, separation from a partner, divorce, injury, falling victim to crime, and incarceration of either the respondent or the respondent’s friend. For example, specification (3) indicates that the death of a spouse reduces volunteering by 0.178 hours in a typical week. Events positively associated

with volunteering include injury or death of a friend or being the victim of a property crime. The variable ‘injury to self’ has the expected outcomes in specifications (2) to (6); namely, potential incapacity reduces volunteering, even though volunteering can help restore social status and increase opportunities to regain financial and psychological well-being.

Improved finances from such events as winning the lottery or receiving an inheritance or other windfall income are positively associated with volunteering (increase in weekly 0.121 hours), supporting the finding that changes in wealth (like the 21 per cent drop in average household wealth in the post-GFC period) alter volunteering behaviour (Figure 2). Yet surprisingly, worsening finances such as going bankrupt, also positively affect volunteering perhaps by triggering an expectation that contributing to society will help reduce the stigma of bankruptcy.

The results on financial gains and losses, however, are not so robust: in the OLS regressions, the statistical significance disappears. We therefore further examine the effect of wealth on volunteering using regressions that report changes in the value of personal trusts, household investments and home value (see Appendix Table A6). These results indicate that improving wealth significantly contributes to volunteering, possibly, however, because the OLS regressions with fixed effects examine changes in individual wealth and income over time that may have different effects on different individuals; for instance, those with high versus low socioeconomic status.

Table 1: The impact of life shocks on volunteering

	Tobit (1)	Tobit (2)	OLS (5)	OLS (6)
Controls	yes	no	yes	no
Death of spouse	-0.986* (0.473) <i>-0.178</i>	-0.757 (0.477) <i>-0.138</i>	-0.167 (0.088)	-0.110 (0.083)
Death of relative	-0.080 (0.130) <i>-0.015</i>	-0.192 (0.131) <i>-0.035</i>	0.004 (0.027)	0.005 (0.027)
Injury to self	0.004 (0.150) <i>0.001</i>	-0.326* (0.147) <i>-0.059</i>	-0.115*** (0.035)	-0.109** (0.035)
Just sent to jail	-2.095 (1.134) <i>-0.378</i>	-4.131*** (1.162) <i>-0.751</i>	0.006 (0.206)	0.005 (0.206)
Injury to a friend	0.811*** (0.109) <i>0.146</i>	1.089*** (0.110) <i>0.198</i>	-0.024 (0.025)	-0.030 (0.025)
Victim of property crime	0.667*** (0.196) <i>0.12</i>	0.252 (0.198) <i>0.046</i>	0.073 (0.042)	0.055 (0.042)
Victim of violence	0.198 (0.355) <i>0.036</i>	-1.192*** (0.358) <i>-0.217</i>	0.056 (0.083)	0.049 (0.083)
Just separated	-1.292*** (0.261) <i>-0.233</i>	-2.291*** (0.254) <i>-0.416</i>	0.024 (0.046)	0.017 (0.043)
Just reconciled with partner	0.152 (0.460)	-0.033 (0.463) <i>-0.006</i>	0.109 (0.089)	0.103 (0.088)
Dismissed from job	-0.387 (0.263) <i>-0.070</i>	-0.612* (0.263) <i>-0.111</i>	-0.028 (0.052)	0.063 (0.052)
Finances worsening	0.672** (0.237) <i>0.121</i>	0.997*** (0.239) <i>0.181</i>	0.011 (0.056)	0.053 (0.056)
Death of a friend	1.945*** (0.124) <i>0.351</i>	2.275*** (0.123) <i>0.413</i>	0.090** (0.034)	0.100** (0.034)
Friend jailed	-0.604 (0.370) <i>-0.109</i>	-1.155** (0.373) <i>-0.210</i>	-0.029 (0.090)	-0.025 (0.090)

Table 1 (continued)

	(1)	(2)	(3)	(4)
Controls	yes	no	yes	no
Just married	-1.891*** (0.301) <i>-0.341</i>	-1.893*** (0.301) <i>-0.344</i>	<i>0.085</i> (0.054)	<i>-0.011</i> (0.047)
Changed jobs	0.010 (0.137) <i>0.002</i>	-1.365*** (0.134) <i>-0.248</i>	<i>0.034</i> (0.025)	<i>-0.024</i> (0.024)
Just pregnant	-2.207*** (0.265) <i>-0.398</i>	-2.456*** (0.263) <i>-0.446</i>	<i>-0.071*</i> (0.032)	<i>-0.099**</i> (0.031)
Moved house	-1.410*** (0.126) <i>-0.254</i>	-2.557*** (0.124) <i>-0.465</i>	<i>-0.126***</i> (0.023)	<i>-0.126***</i> (0.023)
Finances improved	0.734** (0.232) <i>0.132</i>	1.148*** (0.235) <i>0.209</i>	<i>-0.041</i> (0.046)	<i>-0.041</i> (0.047)
Promoted at work	-1.071*** (0.187) <i>-0.193</i>	-2.123*** (0.185) <i>-0.386</i>	<i>-0.071**</i> (0.025)	<i>-0.117***</i> (0.025)
Birth of child	-3.448*** (0.324) <i>-0.622</i>	-2.499*** (0.324) <i>-0.454</i>	<i>-0.284***</i> (0.034)	<i>-0.193***</i> (0.031)
Just retired	-1.404*** (0.267) <i>-0.253</i>	0.014 (0.268) <i>0.002</i>	<i>-0.268***</i> (0.069)	<i>-0.094</i> (0.066)
N	129244	129244	129244	129244
Pseudo R-squared	0.029	0.009		
R-squared			0.006	0.001
Adjusted R-squared			0.006	0.001

Notes: Time period: 2002–2012. Standard errors in parentheses; marginal effects in italics;

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

In the next four tables, therefore, we look at eight different income and wealth groups, paying closer attention to the actual level of financial deterioration or financial gain. For these estimations, we add in several income loss or gain dummies ( $0 < \text{loss/gain} < 25\%$ ,  $25\%$  to  $< 50\%$ ,  $50\%$  and higher) and identify behavioural changes in different post-shock time periods ( $t$ ,  $t+1$ ,

$t+2$ , and  $t+3$ ). For volunteering in  $t$ , we measure the actual income shock based on the change from time  $t-1$  to  $t$ .

Table 2 reports the effects of loss for different income groups. Although the highest income group reacts with a statistically significant increase in volunteering in  $t+1$  (by 1.168 hours), during subsequent years, the change is no longer statistically significant. The 10 to 25 percentile income group, on the other hand, responds with a statistically significant increase in volunteering throughout all four post-shock time periods (strongest effect for period  $t+1$  (0.411 hours) for a loss between 25 to below 50%) with a decrease afterwards). On the other hand, the 26 to 50 percentile group responds immediately but only to the smallest shocks, while the 79 to 90 and 90 to 95 percentile groups respond with a lag of 1 to 2 or 2 to 3 years. For the lowest 10 percentile, the only statistically significant effect emerges several years after the shock, while no statistically significant changes emerge for the 50 to 75 percentile (middle) group. Hence, although the different income groups are heterogeneous, in all the cases of statistically significant effects, volunteering actually increases after a negative income shock.

Table 3 reports the results for the effect of the same negative income shocks on different wealth groups. As a wealth proxy we use “current value of all investments” as a limited number of people have trusts (1.4%, see Table A1). Moreover, the home becomes mainly relevant when selling the house. However, only data for the years 2002, 2006, and 2010 are available. To avoid any missing values we assume that values remain stable for the missing years (e.g., constant values between 2006 and 2009). The top 1 per cent in wealth shows no statistically significant reaction to income shocks, while the other top four groups respond immediately but only to income losses below 50 per cent. Whereas the 96 to 99 percentile group responds with a decrease in time volunteered (0.504 hours, lowest income shock); however, the other groups respond with an increase. The three lowest wealth groups respond with a lag and when the

effect is statistically significant, with an increase in time volunteered. The middle wealth group reacts somewhat differently, responding negatively to the highest income shocks immediately ( $t$ ) and then again many years later ( $t=3$ ). On the other hand, for the lower wealth groups, income shocks in  $t+3$  tend to be positively linked to time spent volunteering. Overall, the results here also point to a tendency for volunteering behaviour not to react negatively to financial losses, and there is also some ‘stickiness’ in the behavioural patterns of individuals.

Table 4 then highlights some striking similarities in the different income groups’ reactions to positive income shocks. For the top income group, the behavioural changes again occur in period  $t+1$  but in the opposite direction (a decrease in volunteering), although here, even an income shock  $>25\% < 50\%$  matters. The 90 to 99 percentile group again responds very late ( $t+2$  and  $t+3$ ), while the 50 to 75 percentile group remains relatively static in its behaviour towards income gain. The 10 to 25 percentile group, on the other hand, is very responsive to income shocks, but once more the gain has an opposite effect, a decrease in the time spent volunteering. In these estimates, the lowest income group is only a little responsive to income shocks. Such consistencies also emerge among the cases that are statistically significant (Table 5). Those with both higher income and more wealth respond sooner to income shocks with a consistent switching of sign in the coefficients (see the 76 to 99 percentile groups for period  $t$ ). The lower wealth groups, in contrast, respond later with an increase in volunteering (from period  $t+2$  onward). Overall, the results underscore the importance of examining different income and wealth groups.

Table 2: Change in volunteering due to negative income shocks for different income groups

	Lowest 10 percentile	10 to 25 percentile	26 to 50 percentile	50 to 75 percentile	76 to 90 percentile	90 to 95 percentile	96 to 99 percentile	Top 1%
<i>Volunteering time t</i>								
Income loss 50% more	-0.657 (0.879) <i>-0.144</i>	-0.768 (0.856) <i>-0.171</i>	-0.147 (0.852) <i>-0.030</i>	0.495 (1.152) <i>0.104</i>	1.273 (1.875) <i>0.276</i>	-2.580 (2.569) <i>-0.528</i>	-0.783 (3.085) <i>-0.183</i>	0.667 (2.518) <i>0.177</i>
Income loss 25% to below 50%	0.615 (0.913) <i>0.135</i>	1.293* (0.605) <i>0.288</i>	-0.131 (0.475) <i>-0.027</i>	0.639 (0.458) <i>0.134</i>	-0.664 (0.644) <i>-0.144</i>	1.645 (1.195) <i>0.336</i>	0.210 (1.562) <i>0.049</i>	-2.705 (2.733) <i>-0.718</i>
Income loss more than 0% and below 25%	0.506 (0.767) <i>0.111</i>	0.027 (0.479) <i>0.006</i>	0.683* (0.330) <i>0.139</i>	0.069 (0.263) <i>0.014</i>	0.444 (0.298) <i>0.096</i>	-0.101 (0.636) <i>-0.021</i>	-0.011 (0.797) <i>-0.003</i>	-0.443 (1.300) <i>-0.118</i>
<i>Volunteering time t+1</i>								
Income loss 50% more	0.038 (0.990) <i>0.008</i>	1.047 (0.834) <i>0.233</i>	-0.526 (0.710) <i>-0.107</i>	1.486 (0.774) <i>0.311</i>	0.784 (0.833) <i>0.170</i>	-4.956 (2.695) <i>-1.013</i>	-1.167 (1.679) <i>-0.273</i>	4.398* (1.880) <i>1.168</i>
Income loss 25% to below 50%	0.905 (0.942) <i>0.198</i>	1.844** (0.650) <i>0.411</i>	-0.340 (0.489) <i>-0.069</i>	-0.185 (0.456) <i>-0.039</i>	1.037* (0.524) <i>0.224</i>	0.932 (0.954) <i>0.191</i>	-0.344 (1.190) <i>-0.081</i>	2.912 (1.523) <i>0.773</i>
Income loss more than 0% and below 25%	0.423 (0.724) <i>0.093</i>	0.315 (0.484) <i>0.070</i>	-0.543 (0.337) <i>-0.110</i>	-0.176 (0.272) <i>-0.037</i>	0.090 (0.297) <i>0.020</i>	-0.703 (0.597) <i>-0.144</i>	1.000 (0.707) <i>0.234</i>	2.097 (1.099) <i>0.557</i>
<i>Volunteering time t+2</i>								
Income loss 50% more	-0.043 (1.029) <i>-0.009</i>	-0.159 (0.862) <i>-0.036</i>	1.047 (0.687) <i>0.213</i>	-0.453 (0.730) <i>-0.095</i>	1.360 (0.824) <i>0.294</i>	-0.929 (1.785) <i>-0.190</i>	2.671 (1.625) <i>0.625</i>	1.013 (1.965) <i>0.269</i>
Income loss 25% to below 50%	1.501 (0.966) <i>0.328</i>	1.796** (0.660) <i>0.400</i>	-0.205 (0.485) <i>-0.042</i>	-0.139 (0.462) <i>-0.029</i>	1.117* (0.516) <i>0.242</i>	2.896** (0.931) <i>0.592</i>	1.683 (1.057) <i>0.394</i>	0.189 (1.473) <i>0.050</i>
Income loss more than 0% and below 25%	-0.894 (0.733) <i>-0.195</i>	1.449** (0.476) <i>0.323</i>	0.183 (0.334) <i>0.037</i>	-0.032 (0.267) <i>-0.007</i>	-0.046 (0.291) <i>-0.010</i>	2.417*** (0.563) <i>0.494</i>	1.341 (0.725) <i>0.314</i>	1.366 (1.056) <i>0.363</i>
<i>Volunteering time t+3</i>								
Income loss 50% more	-1.119 (1.092) <i>-0.245</i>	0.924 (0.827) <i>0.206</i>	-0.485 (0.680) <i>-0.099</i>	-1.164 (0.741) <i>-0.244</i>	1.369 (0.833) <i>0.296</i>	2.416 (1.771) <i>0.494</i>	0.493 (1.632) <i>0.116</i>	-0.700 (1.514) <i>-0.186</i>
Income loss 25% to below 50%	2.286* (0.949) <i>0.500</i>	1.156 (0.648) <i>0.258</i>	0.665 (0.485) <i>0.135</i>	0.130 (0.445) <i>0.027</i>	0.917 (0.510) <i>0.198</i>	2.007* (0.894) <i>0.410</i>	1.426 (1.123) <i>0.334</i>	0.149 (1.599) <i>0.040</i>
Income loss more than 0% and below 25%	-0.700 (0.721) <i>-0.153</i>	1.353** (0.481) <i>0.302</i>	0.317 (0.333) <i>0.065</i>	-0.228 (0.269) <i>-0.048</i>	-0.046 (0.296) <i>-0.010</i>	1.844** (0.590) <i>0.377</i>	1.130 (0.682) <i>0.265</i>	0.532 (1.085) <i>0.141</i>
N	4462	7159	10899	10934	7415	2030	1526	379
Pseudo R-squared	0.017	0.022	0.032	0.033	0.029	0.035	0.026	0.063

Notes: The percentile groups are recalculated for each single year, meaning that the same individual can move to another percentile over time. Standard errors in parentheses; marginal effects in italics; \* p<0.05, \*\* p<0.01, \*\*\* p<0.001.

Table 3: Change in volunteering due to negative income shocks for different wealth groups

	Lowest 10 percentile	10 to 25 percentile	26 to 50 percentile	50 to 75 percentile	76 to 90 percentile	90 to 95 percentile	96 to 99 percentile	Top 1 %
<i>Volunteering time t</i>								
Income loss 50% more	-0.913 (1.519) <i>-0.154</i>	1.109 (0.949) <i>0.207</i>	0.191 (0.762) <i>0.038</i>	-1.583* (0.712) <i>-0.344</i>	-0.203 (0.814) <i>-0.048</i>	1.587 (1.234) <i>0.420</i>	-1.675 (1.322) <i>-0.417</i>	-1.739 (2.021) <i>-0.662</i>
Income loss 25% to below 50%	0.746 (0.959) <i>0.126</i>	1.028 (0.627) <i>0.191</i>	-0.555 (0.563) <i>-0.111</i>	-0.009 (0.486) <i>-0.002</i>	1.790*** (0.536) <i>0.424</i>	2.297** (0.794) <i>0.608</i>	-0.465 (0.921) <i>-0.116</i>	1.533 (1.209) <i>0.583</i>
Income loss more than 0% and below 25%	0.768 (0.557) <i>0.130</i>	0.140 (0.409) <i>0.026</i>	0.088 (0.342) <i>0.018</i>	0.178 (0.323) <i>0.039</i>	0.096 (0.381) <i>0.023</i>	0.318 (0.608) <i>0.084</i>	-2.023** (0.686) <i>-0.504</i>	-0.509 (0.905) <i>-0.194</i>
<i>Volunteering time t+1</i>								
Income loss 50% more	-0.104 (1.354) <i>-0.017</i>	1.856* (0.925) <i>0.346</i>	1.219 (0.696) <i>0.245</i>	-0.703 (0.682) <i>-0.153</i>	1.250 (0.761) <i>0.296</i>	1.640 (1.173) <i>0.434</i>	-0.365 (1.277) <i>-0.091</i>	-0.878 (1.831) <i>-0.334</i>
Income loss 25% to below 50%	2.164* (0.930) <i>0.365</i>	0.869 (0.628) <i>0.162</i>	0.131 (0.572) <i>0.026</i>	0.541 (0.481) <i>0.118</i>	0.890 (0.554) <i>0.211</i>	0.907 (0.827) <i>0.240</i>	-0.226 (0.932) <i>-0.056</i>	-0.813 (1.283) <i>-0.309</i>
Income loss more than 0% and below 25%	-0.167 (0.567) <i>-0.028</i>	-0.326 (0.409) <i>-0.061</i>	0.301 (0.351) <i>0.060</i>	0.359 (0.325) <i>0.078</i>	0.006 (0.380) <i>0.002</i>	-0.158 (0.611) <i>-0.042</i>	-1.061 (0.675) <i>-0.264</i>	0.003 (0.906) <i>0.001</i>
<i>Volunteering time t+2</i>								
Income loss 50% more	-0.048 (1.299) <i>-0.008</i>	1.397 (0.932) <i>0.260</i>	0.457 (0.749) <i>0.092</i>	0.498 (0.658) <i>0.108</i>	-0.060 (0.774) <i>-0.014</i>	1.540 (1.158) <i>0.407</i>	-0.833 (1.225) <i>-0.207</i>	2.807 (1.772) <i>1.068</i>
Income loss 25% to below 50%	2.277* (0.906) <i>0.384</i>	1.513* (0.611) <i>0.282</i>	0.356 (0.564) <i>0.071</i>	0.587 (0.488) <i>0.128</i>	0.555 (0.564) <i>0.132</i>	1.339 (0.854) <i>0.354</i>	0.549 (0.905) <i>0.137</i>	-0.358 (1.353) <i>-0.136</i>
Income loss more than 0% and below 25%	0.447 (0.563) <i>0.075</i>	0.700 (0.405) <i>0.130</i>	0.707* (0.342) <i>0.142</i>	0.120 (0.325) <i>0.026</i>	0.273 (0.374) <i>0.065</i>	0.897 (0.599) <i>0.237</i>	-0.064 (0.670) <i>-0.016</i>	0.510 (0.920) <i>0.194</i>
<i>Volunteering time t+3</i>								
Income loss 50% more	0.093 (1.331) <i>0.016</i>	0.082 (0.928) <i>0.015</i>	-0.216 (0.755) <i>-0.043</i>	-1.436* (0.689) <i>-0.312</i>	0.537 (0.771) <i>0.127</i>	2.936** (1.032) <i>0.777</i>	0.070 (1.305) <i>0.017</i>	2.457 (1.763) <i>0.935</i>
Income loss 25% to below 50%	1.989* (0.931) <i>0.335</i>	1.788** (0.623) <i>0.333</i>	1.134* (0.539) <i>0.228</i>	1.126* (0.478) <i>0.245</i>	-0.193 (0.553) <i>-0.046</i>	1.621 (0.850) <i>0.429</i>	-0.596 (0.920) <i>-0.149</i>	0.077 (1.318) <i>0.029</i>
Income loss more than 0% and below 25%	0.622 (0.566) <i>0.105</i>	0.053 (0.412) <i>0.010</i>	0.715* (0.343) <i>0.144</i>	0.404 (0.322) <i>0.088</i>	-0.051 (0.380) <i>-0.012</i>	0.405 (0.606) <i>0.107</i>	-0.506 (0.675) <i>-0.126</i>	0.855 (0.907) <i>0.325</i>
N	4803	7285	8706	11599	7438	2531	1922	520
Pseudo R-squared	0.032	0.026	0.027	0.020	0.022	0.028	0.036	0.046

Notes: Wealth = total current value of all investments; standard errors in parentheses; marginal effects in italics;

\* p&lt;0.05, \*\* p&lt;0.01, \*\*\* p&lt;0.001.

Table 4: Change in volunteering due to positive income shocks for different income groups

	Lowest 10 percentile	10 to 25 percentile	26 to 50 percentile	50 to 75 percentile	76 to 90 percentile	90 to 95 percentile	96 to 99 percentile	Top 1%
<i>Volunteering time t</i>								
Income gain 50% more	-0.528 (1.178) <i>-0.116</i>	-0.672 (0.726) <i>-0.150</i>	1.007* (0.492) <i>0.205</i>	0.140 (0.441) <i>0.029</i>	0.078 (0.441) <i>0.017</i>	1.692* (0.817) <i>0.346</i>	1.411 (0.948) <i>0.331</i>	0.871 (1.209) <i>0.230</i>
Income gain 25% to below 50%	-0.308 (1.350) <i>-0.067</i>	-0.476 (0.800) <i>-0.106</i>	0.532 (0.502) <i>0.108</i>	-0.389 (0.393) <i>-0.082</i>	-0.335 (0.400) <i>-0.072</i>	-0.139 (0.764) <i>-0.028</i>	-0.162 (0.896) <i>-0.038</i>	-0.595 (1.530) <i>-0.157</i>
Income gain more than 0% and below 25%	-0.284 (0.703) <i>-0.062</i>	-0.193 (0.450) <i>-0.043</i>	0.419 (0.324) <i>0.085</i>	-0.113 (0.261) <i>-0.024</i>	-0.390 (0.303) <i>-0.084</i>	-0.686 (0.635) <i>-0.140</i>	0.279 (0.791) <i>0.065</i>	1.228 (1.271) <i>0.325</i>
<i>Volunteering time t+1</i>								
Income gain 50% more	-1.016 (0.967) <i>-0.222</i>	-1.856** (0.679) <i>-0.414</i>	0.084 (0.504) <i>0.017</i>	0.351 (0.442) <i>0.073</i>	-0.193 (0.475) <i>-0.042</i>	1.197 (0.886) <i>0.244</i>	2.035 (1.062) <i>0.478</i>	-2.654* (1.261) <i>-0.702</i>
Income gain 25% to below 50%	-0.252 (1.111) <i>-0.055</i>	-0.773 (0.729) <i>-0.172</i>	1.286** (0.486) <i>0.262</i>	0.194 (0.402) <i>0.041</i>	-0.736 (0.417) <i>-0.159</i>	0.530 (0.789) <i>0.108</i>	0.330 (0.865) <i>0.077</i>	-4.699*** (1.347) <i>-1.242</i>
Income gain more than 0% and below 25%	-0.762 (0.690) <i>-0.167</i>	-0.700 (0.472) <i>-0.156</i>	0.645 (0.334) <i>0.131</i>	0.098 (0.270) <i>0.021</i>	-0.254 (0.297) <i>-0.055</i>	1.141 (0.604) <i>0.233</i>	-0.660 (0.712) <i>-0.155</i>	-2.001 (1.067) <i>-0.529</i>
<i>Volunteering time t+2</i>								
Income gain 50% more	-0.520 (0.993) <i>-0.114</i>	-1.846** (0.675) <i>-0.412</i>	0.176 (0.485) <i>0.036</i>	0.374 (0.439) <i>0.078</i>	-0.368 (0.473) <i>-0.079</i>	-1.142 (0.934) <i>-0.233</i>	-0.600 (1.070) <i>-0.141</i>	0.112 (1.222) <i>0.030</i>
Income gain 25% to below 50%	-0.254 (1.088) <i>-0.056</i>	-0.374 (0.707) <i>-0.083</i>	0.122 (0.499) <i>0.025</i>	0.205 (0.391) <i>0.043</i>	-0.574 (0.431) <i>-0.124</i>	-2.182** (0.769) <i>-0.446</i>	-0.976 (0.898) <i>-0.229</i>	-1.792 (1.538) <i>-0.474</i>
Income gain more than 0% and below 25%	-0.072 (0.680) <i>-0.016</i>	-1.421** (0.470) <i>-0.317</i>	-0.310 (0.333) <i>-0.063</i>	0.116 (0.268) <i>0.024</i>	-0.236 (0.293) <i>-0.051</i>	-2.181*** (0.579) <i>-0.445</i>	-0.662 (0.703) <i>-0.155</i>	-1.660 (1.069) <i>-0.439</i>
<i>Volunteering time t+3</i>								
Income gain 50% more	-0.988 (0.993) <i>-0.216</i>	-0.607 (0.647) <i>-0.135</i>	-0.091 (0.472) <i>-0.018</i>	0.773 (0.412) <i>0.162</i>	-1.073* (0.471) <i>-0.232</i>	-1.564 (0.874) <i>-0.319</i>	-0.105 (0.957) <i>-0.025</i>	0.867 (1.209) <i>0.229</i>
Income gain 25% to below 50%	0.140 (1.058) <i>0.031</i>	-0.372 (0.694) <i>-0.083</i>	0.163 (0.489) <i>0.033</i>	0.125 (0.385) <i>0.026</i>	-0.040 (0.408) <i>-0.009</i>	-1.773* (0.803) <i>-0.362</i>	-0.283 (0.854) <i>-0.066</i>	-0.221 (1.290) <i>-0.058</i>
Income gain more than 0% and below 25%	-0.142 (0.667) <i>-0.031</i>	-1.894*** (0.463) <i>-0.422</i>	-0.350 (0.329) <i>-0.071</i>	0.198 (0.267) <i>0.041</i>	-0.180 (0.289) <i>-0.039</i>	-1.713** (0.580) <i>-0.350</i>	-1.248 (0.702) <i>-0.293</i>	0.128 (1.060) <i>0.034</i>
N	4462	7159	10899	10934	7415	2030	1526	379
Pseudo R-squared	0.016	0.022	0.032	0.032	0.029	0.035	0.029	0.069

Notes: Standard errors in parentheses; marginal effects in italics; \* p&lt;0.05, \*\* p&lt;0.01, \*\*\* p&lt;0.001.

Table 5: Change in volunteering due to positive income shocks for different wealth groups

	Lowest 10 percentile	10 to 25 percentile	26 to 50 percentile	50 to 75 percentile	76 to 90 percentile	90 to 95 percentile	96 to 99 percentile	Top 1%
<i>Volunteering time t</i>								
Income gain 50% more	-0.282 (0.900) <i>-0.048</i>	1.159 (0.621) <i>0.216</i>	-0.304 (0.528) <i>-0.061</i>	0.519 (0.479) <i>0.113</i>	0.266 (0.539) <i>0.063</i>	-0.451 (0.842) <i>-0.119</i>	0.887 (0.946) <i>0.221</i>	-2.689* (1.299) <i>-1.020</i>
Income gain 25% to below 50%	-0.060 (0.834) <i>-0.010</i>	-0.626 (0.614) <i>-0.117</i>	0.041 (0.498) <i>0.008</i>	-0.206 (0.464) <i>-0.045</i>	-1.228* (0.553) <i>-0.291</i>	-1.791* (0.861) <i>-0.474</i>	2.505** (0.958) <i>0.624</i>	-1.757 (1.273) <i>-0.666</i>
Income gain more than 0% and below 25%	-0.643 (0.551) <i>-0.108</i>	-0.518 (0.395) <i>-0.096</i>	-0.018 (0.336) <i>-0.004</i>	-0.090 (0.312) <i>-0.020</i>	-0.555 (0.372) <i>-0.132</i>	-0.514 (0.582) <i>-0.136</i>	1.631* (0.658) <i>0.406</i>	1.335 (0.882) <i>0.506</i>
<i>Volunteering time t+1</i>								
Income gain 50% more	-0.118 (0.896) <i>-0.020</i>	0.622 (0.628) <i>0.116</i>	-1.429** (0.545) <i>-0.287</i>	-0.458 (0.488) <i>-0.100</i>	-0.383 (0.550) <i>-0.091</i>	0.726 (0.834) <i>0.192</i>	0.080 (0.984) <i>0.020</i>	-0.691 (1.227) <i>-0.262</i>
Income gain 25% to below 50%	0.331 (0.834) <i>0.056</i>	0.069 (0.613) <i>0.013</i>	-0.348 (0.499) <i>-0.070</i>	-0.034 (0.462) <i>-0.007</i>	-0.653 (0.545) <i>-0.155</i>	-0.485 (0.841) <i>-0.128</i>	2.183* (0.939) <i>0.544</i>	-2.392 (1.388) <i>-0.907</i>
Income gain more than 0% and below 25%	-0.152 (0.560) <i>-0.026</i>	0.068 (0.403) <i>0.013</i>	-0.262 (0.346) <i>-0.053</i>	-0.299 (0.316) <i>-0.065</i>	-0.313 (0.379) <i>-0.074</i>	-0.210 (0.606) <i>-0.056</i>	0.596 (0.661) <i>0.149</i>	0.598 (0.914) <i>0.227</i>
<i>Volunteering time t+2</i>								
Income gain 50% more	0.156 (0.902) <i>0.026</i>	-0.547 (0.645) <i>-0.102</i>	-1.141* (0.536) <i>-0.229</i>	-0.590 (0.481) <i>-0.128</i>	-0.452 (0.555) <i>-0.107</i>	0.809 (0.840) <i>0.214</i>	0.510 (0.943) <i>0.127</i>	-0.001 (1.206) <i>-0.000</i>
Income gain 25% to below 50%	-0.329 (0.855) <i>-0.055</i>	-0.640 (0.608) <i>-0.119</i>	-0.057 (0.503) <i>-0.011</i>	-0.289 (0.469) <i>-0.063</i>	-0.566 (0.538) <i>-0.134</i>	-1.142 (0.845) <i>-0.302</i>	0.216 (0.955) <i>0.054</i>	-3.229* (1.439) <i>-1.224</i>
Income gain more than 0% and below 25%	-0.706 (0.560) <i>-0.119</i>	-0.813* (0.398) <i>-0.151</i>	-0.822* (0.340) <i>-0.165</i>	-0.182 (0.315) <i>-0.040</i>	-0.251 (0.374) <i>-0.060</i>	-1.135 (0.606) <i>-0.300</i>	-0.112 (0.669) <i>-0.028</i>	-0.466 (0.944) <i>-0.177</i>
<i>Volunteering time t+3</i>								
Income gain 50% more	0.896 (0.843) <i>0.151</i>	-0.669 (0.634) <i>-0.125</i>	-0.183 (0.507) <i>-0.037</i>	-0.436 (0.465) <i>-0.095</i>	-0.494 (0.540) <i>-0.117</i>	-0.275 (0.806) <i>-0.073</i>	0.704 (0.914) <i>0.175</i>	-1.659 (1.160) <i>-0.629</i>
Income gain 25% to below 50%	-0.621 (0.838) <i>-0.105</i>	0.389 (0.581) <i>0.072</i>	-0.274 (0.505) <i>-0.055</i>	-0.166 (0.454) <i>-0.036</i>	-0.077 (0.533) <i>-0.018</i>	-0.489 (0.835) <i>-0.129</i>	0.714 (0.882) <i>0.178</i>	-0.591 (1.299) <i>-0.224</i>
Income gain more than 0% and below 25%	-1.089 (0.557) <i>-0.183</i>	-0.464 (0.397) <i>-0.086</i>	-1.117*** (0.336) <i>-0.224</i>	-0.452 (0.312) <i>-0.098</i>	0.076 (0.373) <i>0.018</i>	-0.801 (0.590) <i>-0.212</i>	0.415 (0.662) <i>0.103</i>	-1.385 (0.981) <i>-0.525</i>
N	4803	7285	8706	11599	7438	2531	1922	520
Pseudo R-squared	0.032	0.025	0.028	0.020	0.022	0.027	0.037	0.054

Notes: Standard errors in parentheses; marginal effects in italics; \* p&lt;0.05, \*\* p&lt;0.01, \*\*\* p&lt;0.001.

In Tables 6 and 7, we extend the analysis reported in Table 1, which explores life event shocks for different income and wealth groups. As Table 6 shows, the death of a spouse leads to behavioural change (less volunteering) only for the lowest income group (by 0.952 hours). For the rest, the trend is a positive coefficient, albeit not statistically significant. The death of a friend, however, leads to an increase in volunteering for all income groups (strongest effect for the lowest income group: 0.842 hours). Separation from a partner, on the other hand, leads to a decrease in volunteering that is statistically significant for the lower income groups, while pregnancy has a relatively consistent negative influence on volunteering across most income groups (although it is not statistically significant in the two groups with high relative income). Interestingly, the birth of the child has a negative influence on volunteering (decrease of around 0.5 hours) with the exception of the lowest and highest income group for which the coefficients are not statistically significant. Moving house has a relatively robust negative influence on volunteering throughout the different income percentiles. Most interesting, contrary to many studies, we find that simply being retired leads to a decrease in volunteering, particularly in the three lowest income groups (decrease in volunteering by 0.782 hours). Finally, being newly married is also negatively linked to a decrease in volunteering although the coefficient is not statistically significant in all income bands. The overall trend of the wealth groups' reactions to life shocks in Table 7 is very similar to those in Table 6, except for certain differences in the percentiles affected.

Table 6: The effect of life event shocks on volunteering time for different income groups

Tobit model	Lowest 10 percentile	10 to 25 percentile	26 to 50 percentile	50 to 75 percentile	76 to 90 percentile	90 to 95 percentile	96 to 99 percentile	Top 1%
Death of spouse	-5.236*** (1.326) <i>-0.952</i>	0.425 (1.095) <i>0.080</i>	0.509 (1.042) <i>0.090</i>	-1.078 (1.131) <i>-0.192</i>	0.844 (1.421) <i>0.155</i>	0.054 (3.338) <i>0.010</i>	0.455 (2.637) <i>0.083</i>	0.966 (5.486) <i>0.215</i>
Death of relative	0.471 (0.574) <i>0.086</i>	-0.665 (0.388) <i>-0.125</i>	-0.183 (0.273) <i>-0.032</i>	0.160 (0.220) <i>0.029</i>	0.074 (0.251) <i>0.014</i>	-0.478 (0.464) <i>-0.086</i>	-0.285 (0.548) <i>-0.052</i>	-1.348 (0.945) <i>-0.299</i>
Injury to self	-0.413 (0.556) <i>-0.075</i>	-0.398 (0.408) <i>-0.075</i>	-0.087 (0.316) <i>-0.015</i>	0.272 (0.279) <i>0.048</i>	0.360 (0.313) <i>0.066</i>	-0.090 (0.555) <i>-0.016</i>	0.647 (0.694) <i>0.118</i>	1.400 (1.058) <i>0.311</i>
Just sent to jail	-2.913 (3.338) <i>-0.530</i>	-5.376 (2.951) <i>-1.008</i>	-3.113 (2.555) <i>-0.551</i>	-2.668 (2.788) <i>-0.474</i>	-0.810 (2.906) <i>-0.149</i>	4.399 (4.883) <i>0.788</i>	13.400** (4.588) <i>2.436**</i>	
Injury to a friend	1.753*** (0.499) <i>0.319</i>	1.609*** (0.314) <i>0.302</i>	0.780*** (0.230) <i>0.138</i>	0.631*** (0.188) <i>0.112</i>	0.155 (0.211) <i>0.029</i>	0.597 (0.373) <i>0.107</i>	-0.114 (0.474) <i>-0.021</i>	0.986 (0.748) <i>0.219</i>
Victim of property crime	0.403 (0.907) <i>0.073</i>	1.197* (0.599) <i>0.224*</i>	0.005 (0.424) <i>0.001</i>	1.386*** (0.321) <i>0.246</i>	-0.020 (0.378) <i>-0.004</i>	-0.169 (0.746) <i>-0.030</i>	0.707 (0.753) <i>0.128</i>	1.353 (1.210) <i>0.301</i>
Victim of violence	0.460 (1.303) <i>0.084</i>	-1.772 (1.056) <i>-0.332</i>	0.869 (0.702) <i>0.154</i>	1.097 (0.637) <i>0.195</i>	-0.915 (0.804) <i>-0.168</i>	-0.107 (1.403) <i>-0.019</i>	0.960 (1.798) <i>0.174</i>	-3.299 (3.509) <i>-0.733</i>
Just separated	-2.980** (0.936) <i>-0.542</i>	-0.854 (0.652) <i>-0.160</i>	-1.371** (0.510) <i>-0.243</i>	-1.129* (0.528) <i>-0.201</i>	-1.195 (0.644) <i>-0.220</i>	-2.260 (1.283) <i>-0.405</i>	0.224 (1.412) <i>0.041</i>	-2.380 (2.188) <i>-0.529</i>
Just reconciled with partner	0.798 (2.044) <i>0.145</i>	1.189 (1.273) <i>0.223</i>	-1.439 (0.908) <i>-0.255</i>	-0.055 (0.821) <i>-0.010</i>	1.099 (1.017) <i>0.202</i>	4.138** (1.579) <i>0.741**</i>	-4.228 (2.755) <i>-0.768</i>	
Dismissed from job	0.225 (1.245) <i>0.041</i>	-0.093 (0.840) <i>-0.018</i>	0.264 (0.518) <i>0.047</i>	-0.756 (0.442) <i>-0.134</i>	-0.677 (0.528) <i>-0.125</i>	-1.539 (0.943) <i>-0.276</i>	0.173 (1.049) <i>0.031</i>	-0.076 (1.860) <i>-0.017</i>
Finances worsening	0.634 (0.866) <i>0.115</i>	1.078 (0.638) <i>0.202</i>	0.558 (0.460) <i>0.099</i>	0.286 (0.448) <i>0.051</i>	-0.049 (0.573) <i>-0.009</i>	-0.489 (1.175) <i>-0.088</i>	1.972 (1.255) <i>0.358</i>	3.207* (1.605) <i>0.712*</i>
Death of a friend	4.630*** (0.456) <i>0.842</i>	2.219*** (0.324) <i>0.416</i>	1.175*** (0.260) <i>0.208</i>	1.573*** (0.229) <i>0.280</i>	1.141*** (0.272) <i>0.210</i>	1.641** (0.515) <i>0.294</i>	1.851** (0.615) <i>0.336</i>	2.199* (0.935) <i>0.488</i>
Friend jailed	0.140 (1.431) <i>0.025</i>	0.202 (0.979) <i>0.038</i>	0.129 (0.705) <i>0.023</i>	-2.029** (0.717) <i>-0.361**</i>	-1.453 (0.889) <i>-0.267</i>	2.433 (1.544) <i>0.436</i>	-0.646 (2.213) <i>-0.117</i>	-0.716 (2.170) <i>-0.159</i>
Just married	-3.099 (2.057) <i>-0.563</i>	-2.861** (1.108) <i>-0.537</i>	-0.864 (0.584) <i>-0.153</i>	-1.866*** (0.471) <i>-0.332</i>	-1.192* (0.545) <i>-0.219</i>	-1.620 (1.055) <i>-0.290</i>	-0.972 (1.287) <i>-0.177</i>	-2.316 (2.448) <i>-0.514</i>
Changed jobs	-1.195 (0.828) <i>-0.217</i>	-1.123* (0.493) <i>-0.211*</i>	-0.115 (0.287) <i>-0.020</i>	0.173 (0.215) <i>0.031</i>	0.319 (0.241) <i>0.059</i>	0.736 (0.436) <i>0.132</i>	-0.725 (0.543) <i>-0.132</i>	-0.833 (0.844) <i>-0.185</i>
Just pregnant	-7.223** (2.329) <i>-1.313</i>	-1.990 (1.047) <i>-0.373</i>	-1.944*** (0.520) <i>-0.344</i>	-1.599*** (0.394) <i>-0.284</i>	-1.563*** (0.464) <i>-0.288</i>	-1.712 (1.008) <i>-0.307</i>	-0.049 (1.242) <i>-0.009</i>	-3.371* (1.667) <i>-0.749</i>
Moved house	-2.327*** (0.585) <i>-0.423</i>	-1.130** (0.379) <i>-0.212</i>	-1.210*** (0.253) <i>-0.214</i>	-1.371*** (0.216) <i>-0.244</i>	-1.367*** (0.251) <i>-0.252</i>	-2.057*** (0.488) <i>-0.369</i>	-1.109 (0.580) <i>-0.201</i>	-0.615 (0.863) <i>-0.137</i>
Finances improved	0.704 (1.162) <i>0.128</i>	1.503* (0.750) <i>0.282*</i>	0.647 (0.506) <i>0.114</i>	0.543 (0.393) <i>0.097</i>	0.543 (0.412) <i>0.100</i>	-0.373 (0.730) <i>-0.067</i>	1.179 (0.793) <i>0.214</i>	0.483 (1.129) <i>0.107</i>
Promoted at work	-0.600 (1.718) <i>-0.109</i>	-0.903 (0.852) <i>-0.169</i>	-0.828* (0.417) <i>-0.147</i>	-0.988*** (0.284) <i>-0.176</i>	-0.735** (0.283) <i>-0.135</i>	0.299 (0.508) <i>0.053</i>	-1.733* (0.697) <i>-0.315</i>	0.151 (1.047) <i>0.033</i>
Birth of child	0.499	-2.579	-3.541***	-3.348***	-3.156***	-2.748*	-4.221**	1.148

	(2.698)	(1.334)	(0.617)	(0.477)	(0.609)	(1.314)	(1.416)	(1.928)
	<i>0.091</i>	<i>-0.484</i>	<i>-0.627</i>	<i>-0.595</i>	<i>-0.581</i>	<i>-0.492</i>	<i>-0.767</i>	<i>0.255</i>
Just retired	<i>-4.301***</i>	<i>-1.376*</i>	<i>-1.383*</i>	<i>-0.754</i>	<i>-1.559*</i>	<i>0.997</i>	<i>0.741</i>	<i>-1.241</i>
	(0.960)	(0.658)	(0.569)	(0.559)	(0.632)	(0.970)	(1.084)	(1.825)
	<i>-0.782</i>	<i>-0.258</i>	<i>-0.245</i>	<i>-0.134</i>	<i>-0.287</i>	<i>0.179</i>	<i>0.135</i>	<i>-0.276</i>
N	12931	19382	32312	32316	20498	5901	4730	1174
Pseudo R-squared	0.024	0.025	0.035	0.036	0.036	0.039	0.034	0.044

Notes: Some life shocks for the highest income group are excluded because of a lack of data. Standard errors in parentheses; marginal effects in italics; \* p<0.05, \*\* p<0.01, \*\*\* p<0.001.

Table 7: The effect of life event shocks on volunteering time for different wealth groups

Tobit model	Lowest 10 percentile	10 to 25 percentile	26 to 50 percentile	50 to 75 percentile	76 to 90 percentile	90 to 95 percentile	96 to 99 percentile	Top 1%
Death of spouse	0.217 (1.614) <i>0.033</i>	0.014 (1.247) <i>0.002</i>	-2.305* (0.977) <i>-0.388</i>	-0.242 (0.957) <i>-0.045</i>	-0.834 (1.017) <i>-0.168</i>	-4.409 (2.574) <i>-0.889</i>	-4.498 (3.166) <i>-0.976</i>	-0.207 (4.728) <i>-0.059</i>
Death of relative	-1.021* (0.454) <i>-0.156</i>	0.054 (0.328) <i>0.009</i>	0.107 (0.243) <i>0.018</i>	0.055 (0.272) <i>0.010</i>	-0.346 (0.332) <i>-0.070</i>	0.407 (0.606) <i>0.082</i>	0.080 (0.653) <i>0.017</i>	-0.516 (0.988) <i>-0.148</i>
Injury to self	-0.472 (0.517) <i>-0.072</i>	0.288 (0.383) <i>0.048</i>	-0.251 (0.289) <i>-0.042</i>	0.374 (0.313) <i>0.070</i>	-0.211 (0.378) <i>-0.043</i>	-0.062 (0.668) <i>-0.012</i>	0.729 (0.682) <i>0.158</i>	-0.253 (1.050) <i>-0.073</i>
Just sent to jail	-6.151 (4.633) <i>-0.939</i>	-0.961 (2.652) <i>-0.159</i>	-1.644 (1.985) <i>-0.277</i>	-3.464 (2.977) <i>-0.652</i>	-1.610 (2.609) <i>-0.324</i>	3.393 (4.772) <i>0.684</i>		
Injury to a friend	-0.087 (0.382) <i>-0.013</i>	0.651* (0.284) <i>0.108*</i>	0.675** (0.206) <i>0.114</i>	0.932*** (0.226) <i>0.175</i>	1.207*** (0.277) <i>0.243</i>	1.258* (0.503) <i>0.254</i>	1.225* (0.530) <i>0.266</i>	-0.089 (0.756) <i>-0.025</i>
Victim of property crime	0.178 (0.669) <i>0.027</i>	0.300 (0.511) <i>0.050</i>	1.070** (0.363) <i>0.180</i>	0.290 (0.413) <i>0.055</i>	1.730*** (0.509) <i>0.348</i>	0.108 (0.908) <i>0.022</i>	-0.043 (1.002) <i>-0.009</i>	-0.669 (1.470) <i>-0.192</i>
Victim of violence	0.057 (1.118) <i>0.009</i>	1.153 (0.899) <i>0.191</i>	-0.734 (0.679) <i>-0.124</i>	0.571 (0.746) <i>0.107</i>	0.977 (0.880) <i>0.197</i>	-0.812 (1.789) <i>-0.164</i>	-0.145 (2.022) <i>-0.032</i>	-2.039 (3.568) <i>-0.585</i>
Just separated	-1.415 (0.862) <i>-0.216</i>	-1.543* (0.636) <i>-0.256</i>	-0.614 (0.467) <i>-0.103</i>	-2.010*** (0.581) <i>-0.378</i>	-1.105 (0.673) <i>-0.222</i>	0.620 (1.325) <i>0.125</i>	-4.539** (1.610) <i>-0.985</i>	-2.501 (1.998) <i>-0.717</i>
Just reconciled with partner	-0.936 (1.525) <i>-0.143</i>	0.294 (1.062) <i>0.049</i>	-0.159 (0.806) <i>-0.027</i>	-0.256 (1.094) <i>-0.048</i>	0.383 (1.283) <i>0.077</i>	0.999 (2.332) <i>0.201</i>	5.890** (2.261) <i>1.278</i>	1.128 (3.571) <i>0.324</i>
Dismissed from job	0.062 (0.853) <i>0.009</i>	-0.127 (0.622) <i>-0.021</i>	-1.496** (0.505) <i>-0.252</i>	-0.161 (0.559) <i>-0.030</i>	0.887 (0.680) <i>0.179</i>	-0.266 (1.324) <i>-0.054</i>	-1.190 (1.531) <i>-0.258</i>	-1.862 (2.202) <i>-0.534</i>
Finances worsening	0.412 (0.827) <i>0.063</i>	0.261 (0.619) <i>0.043</i>	1.532*** (0.429) <i>0.258</i>	0.433 (0.510) <i>0.081</i>	-0.160 (0.607) <i>-0.032</i>	0.270 (1.202) <i>0.054</i>	0.141 (1.145) <i>0.031</i>	-0.460 (1.504) <i>-0.132</i>
Death of a friend	1.775*** (0.436) <i>0.271***</i>	2.781*** (0.316) <i>0.461***</i>	1.668*** (0.241) <i>0.281***</i>	2.059*** (0.253) <i>0.387***</i>	1.978*** (0.311) <i>0.398***</i>	0.885 (0.562) <i>0.178</i>	0.908 (0.592) <i>0.197</i>	3.001*** (0.776) <i>0.861***</i>
Friend jailed	-0.896	-0.356	-0.695	-1.088	-1.209	1.885	1.399	1.020

	(1.230)	(0.903)	(0.681)	(0.787)	(1.020)	(1.828)	(1.732)	(2.680)
	<i>-0.137</i>	<i>-0.059</i>	<i>-0.117</i>	<i>-0.205</i>	<i>-0.243</i>	<i>0.380</i>	<i>0.304</i>	<i>0.293</i>
Just married	-2.912**	-2.770***	-1.644**	-1.385*	-1.636*	-1.360	-2.268	1.266
	(1.053)	(0.757)	(0.537)	(0.646)	(0.794)	(1.587)	(1.496)	(2.481)
	<i>-0.445</i>	<i>-0.459</i>	<i>-0.277</i>	<i>-0.260</i>	<i>-0.329</i>	<i>-0.274</i>	<i>-0.492</i>	<i>0.363</i>
Changed jobs	1.267**	0.343	0.189	-0.449	-0.752*	0.560	-0.986	-0.901
	(0.426)	(0.332)	(0.253)	(0.294)	(0.368)	(0.714)	(0.765)	(1.148)
	<i>0.194</i>	<i>0.057</i>	<i>0.032</i>	<i>-0.084</i>	<i>-0.151</i>	<i>0.113</i>	<i>-0.214</i>	<i>-0.259</i>
Just pregnant	-0.418	-2.131**	-2.164***	-3.040***	-2.340**	-1.574	-3.455*	1.822
	(0.847)	(0.658)	(0.482)	(0.564)	(0.720)	(1.388)	(1.490)	(1.654)
	<i>-0.064</i>	<i>-0.353</i>	<i>-0.365</i>	<i>-0.572</i>	<i>-0.471</i>	<i>-0.317</i>	<i>-0.750</i>	<i>0.523</i>
Moved house	-1.179**	-2.022***	-1.087***	-1.359***	-1.553***	-0.889	-1.679*	-3.097**
	(0.410)	(0.324)	(0.228)	(0.266)	(0.333)	(0.626)	(0.667)	(0.993)
	<i>-0.180</i>	<i>-0.335</i>	<i>-0.183</i>	<i>-0.256</i>	<i>-0.313</i>	<i>-0.179</i>	<i>-0.364</i>	<i>-0.889</i>
Finances improved	-0.806	0.909	0.410	1.152*	1.111	-0.129	1.242	0.947
	(0.851)	(0.616)	(0.447)	(0.479)	(0.574)	(1.065)	(1.070)	(1.255)
	<i>-0.123</i>	<i>0.151</i>	<i>0.069</i>	<i>0.217</i>	<i>0.224</i>	<i>-0.026</i>	<i>0.270</i>	<i>0.272</i>
Promoted at work	-0.086	-1.616***	-0.598	-1.394***	-1.464**	-1.785	0.437	-3.919*
	(0.572)	(0.469)	(0.328)	(0.411)	(0.504)	(1.030)	(1.024)	(1.785)
	<i>-0.013</i>	<i>-0.268</i>	<i>-0.101</i>	<i>-0.262</i>	<i>-0.295</i>	<i>-0.360</i>	<i>0.095</i>	<i>-1.124*</i>
Birth of child	-3.587***	-4.337***	-2.919***	-3.852***	-2.445**	-3.589*	-5.896**	-1.974
	(1.084)	(0.804)	(0.582)	(0.701)	(0.849)	(1.628)	(1.982)	(2.262)
	<i>-0.548</i>	<i>-0.719</i>	<i>-0.492</i>	<i>-0.725</i>	<i>-0.492</i>	<i>-0.724</i>	<i>-1.279</i>	<i>-0.566</i>
Just retired	-1.347	-0.750	-1.561**	-2.437***	-0.885	-1.738	-0.525	2.147
	(1.008)	(0.708)	(0.520)	(0.587)	(0.605)	(1.312)	(1.071)	(1.608)
	<i>-0.206</i>	<i>-0.124</i>	<i>-0.263</i>	<i>-0.458</i>	<i>-0.178</i>	<i>-0.350</i>	<i>-0.114</i>	<i>0.616</i>
N	13393	20173	34093	29905	19133	6354	4974	1219
Pseudo R-squared	0.033	0.033	0.027	0.029	0.026	0.034	0.038	0.052

Notes: Some life shocks for the two highest income group are excluded because of a lack of data. Standard errors in parentheses; marginal effects in italics; \* p<0.05, \*\* p<0.01, \*\*\* p<0.00.

## CONCLUSIONS

Because high civil engagement is considered to be a sign of a healthy civil society (Wilson and Musick, 1998), we use longitudinal data from Australia to explore how individuals from different income and wealth groups respond to life and financial shocks with respect to volunteering. Our results underscore the importance of examining different income and wealth groups when exploring reactions to life shocks. Some groups, for example, show a stronger behavioural ‘stickiness’ (e.g., highest and lowest income and wealth group for income shocks, Tables 2-5) or response delays in post-shock volunteering, with volunteering habits seemingly

driven and influenced by a strong commitment and motivation that are not shattered by life or financial shocks. In fact, the amount of time spent volunteering tends to increase after negative income shocks and decrease after positive income shocks.

Until now, however, the social sciences have little understood life's discontinuities, primarily because for many years, empirical studies were limited by a lack of solid longitudinal data. In our study, by analysing long-term data from a single country, we are able to hold institutional conditions constant (i.e., preserve a homogenous entity). In particular, because Australia is a developed nation, the HILDA data set is relatively well designed, allowing accurate measurement of individual responses to life event shocks. Ideally, therefore, future research should explore developing countries, although such exploration may well encounter several problems that could reduce the observed effect of wealth. In low-income countries, for example, the opportunities for personal savings opportunities may be restricted (producing a scarcity of good savings instruments) and the potential for positive returns from assets may be reduced by significant rates of inflation (Besley, 1995). In developing countries, on the other hand, financial innovations have reduced credit constraints, providing increased availability and lowering the costs of borrowing (Cooper and Dynan, 2013).

Because exploring life shocks is a complex and challenging process, our analysis admittedly suffers from certain limitations, some of which point to interesting avenues for further study. First, our design does not account for the fact that financial and life shocks have both anticipated and unanticipated components. However, when studying income or wealth, it is difficult to identify situations in which these factors change predictably (Jappelli and Pistaferri, 2010). The anticipated effects of life events, for example, may impact such factors as life satisfaction (Frijters et al., 2011) but are less likely to affect volunteering. For instance, the

anticipated birth of a child is highly predictable and should have limited implications for parental time constraints until after the baby is born.

It is also valid to ask whether our yearly measure for the timing of life events is a poorer choice than a monthly or even weekly measure, especially given that the timing may be particularly relevant for emotions, values or subjective well-being. For example, Frijters et al.'s (2011) identification of financial deterioration, death of a spouse/child, and marriage or separation as having the strongest momentary impacts is based on quarterly data. It is less clear, however, whether behavioural commitments like volunteering change within such a short time frame. Our methodology also fails to account for the fact that volunteering is typically a local phenomenon (Brown, 1999b), one often motivated by a local failure to provide for community needs but whose opportunity set of activities tends to be defined by local government (Torgler et al., 2010). Future research should thus control for and/or explore the importance of such local factors.

Our design also treats the shocks studied objectively, whereas in reality they may have a subjective dimension. For example, not only may individuals differ greatly in the way they *perceive* and react to shocks, but the economic value of time (use) can vary in its psychological salience (DeVoe and Pfeffer, 2007). Likewise, even though we have outlined the multiple motives of volunteering – pointing out that the stronger they are, the less likely that behaviour will change – we have also treated the actual motives as black boxes. Hence, future research might explore the interaction between these motives and the life and financial shocks explored in this study while also checking for additional differences between income and wealth groups. A key problem in such an analysis, however, is that asking people directly about their reasons for volunteering may lead to biases stemming from *ex post* justifications of volunteering. Nevertheless, it may still be possible to measure the relative strengths of the different motives.

In addition, although we do control for age, we do not analyse how shocks for different income and wealth groups are interrelated with the individuals' *life course* and only control for a limited number of factors that might shape volunteering. We also neglect *internal* discontinuities (as opposed to external shocks), which may be even more relevant to understanding why individuals volunteer. Our analysis also fails to take into account whether men and women experience different changes and constraints in their lives, particularly during transitions and/or major shocks, so future research should take a closer look at gender differences. Finally, by exploring the act of volunteering in general, we ignore the different organizations and activities that volunteers undertake, as well as the different responses to shocks that may be generated by different voluntary pursuits. The vast array of different and disparate activities, however, makes it difficult to explain all activities using the same factors (Wilson, 2000). Rather, the analysis reported here can serve as a useful starting point for broadening our understanding of the effect of income and wealth on volunteering activities in the face of negative life events and financial shocks.

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## Appendix

Table A1: Sample averages for the variables included in the analyses: HILDA waves 2 to 12<sup>8</sup>

Variable	Obs	Mean	Std. Dev.	Min	Max
<b>Dependent variable</b>					
Volunteering/charity work hours per week	129244	0.9370863	3.32849	0	113
<b>Demographics</b>					
Year	129244	2007.254	3.26711	2002	2012
Female	129244	0.5304153	0.499076	0	1
Age in years	129244	44.03828	18.1058	14	100
Ln household income	129244	10.92131	1.023211	0	13.58874
Years of education	129244	12.75765	1.840194	9	18
Health	129244	3.401798	0.9559627	1	5
Disability	129244	0.2283433	0.4197666	0	1
Number of children	129244	0.7129306	1.089629	0	12
Married	129244	0.5033038	0.499991	0	1
Separated	129244	0.0318003	0.1754688	0	1
Divorced	129244	0.0906116	0.287057	0	1
Widowed	129244	0.048273	0.2143434	0	1
In relationship but unmarried	129244	0.0934202	0.2910215	0	1
Employed	129244	0.6490205	0.4772784	0	1
Unemployed	129244	0.0337346	0.180546	0	1
Retired	129244	0.1762403	0.3810259	0	1
<b>Wealth in \$AUD</b>					
Household members with a trust fund	129244	0.0144455	0.1193188	0	1
Total current value of trusts \$AUD	129244	3250.572	76412.7	0	3100891
Total current value of all investments \$AUD	129244	10635.24	103282.8	0	3449885
Home value \$AUD	129244	351874.1	396592.2	0	5060769

Notes: Samples include all observations with non-missing information. The HILDA data were extracted using the add-on package PanelWhiz v.3.0 (Nov. 2010) for Stata (Haisken-DeNew and Hahn, 2006).

Table A2: Count and percentage occurrence of life events by annual disposable income (\$AUD) percentile

	<b>Lowest 10</b>		<b>10 to 25</b>		<b>25 to 50</b>		<b>50 to 75</b>		<b>75 to 90</b>		<b>90 to 95</b>		<b>95 to 99</b>		<b>Top 1%</b>	
<b>Average disposable income</b>	<b>\$14,551</b>		<b>\$30,509</b>		<b>\$52,257</b>		<b>\$79,357</b>		<b>\$113,067</b>		<b>\$143,022</b>		<b>\$189,274</b>		<b>\$ 373,868</b>	
Death of spouse	321	2%	232	1%	216	1%	139	0.4%	67	0.3%	12	0.2%	17	0.3%	3	0.2%
Death of relative	1477	9%	2233	10%	3673	9%	3586	9%	2163	9%	618	10%	504	10%	113	9%
Injury to self	1796	11%	2135	9%	2745	7%	2216	6%	1346	6%	412	7%	278	6%	66	5%
Just sent to gaol	59	0%	72	0%	72	0.2%	41	0.1%	24	0.1%	4	0%	4	0.1%	2	0%
Injury to a friend	2003	13%	3324	14%	5234	13%	5012	13%	3199	14%	935	15%	677	14%	167	13%
Victim of property crime	575	4%	842	4%	1494	4%	1472	4%	947	4%	242	4%	235	5%	52	4%
Victim of violence	325	2%	377	2%	586	1%	422	1%	260	1%	72	1%	44	1%	11	1%
Just separated	776	5%	1038	4%	1496	4%	913	2%	500	2%	146	2%	90	2%	33	3%
Reconciled with partner	134	1%	222	1%	426	1%	313	1%	146	1%	50	1%	33	1%	6	0%
Dismissed from job	338	2%	537	2%	1120	3%	1013	3%	556	2%	169	3%	135	3%	23	2%
Finances worsening	634	4%	755	3%	1200	3%	802	2%	375	2%	94	1%	69	1%	26	2%
Death of a friend	2258	14%	2894	12%	3632	9%	2876	8%	1614	7%	402	6%	304	6%	90	7%
Friend jailed	234	1%	343	1%	534	1%	393	1%	197	1%	42	1%	27	1%	16	1%
Just married	133	1%	300	1%	825	2%	997	3%	610	3%	153	2%	110	2%	25	2%
Changed jobs	1070	7%	2031	9%	4567	11%	4982	13%	3079	13%	874	14%	666	14%	162	13%
Just pregnant	238	1%	566	2%	2045	5%	2192	6%	1231	5%	264	4%	241	5%	80	6%
Moved house	2304	14%	3432	15%	6178	15%	5417	14%	3124	14%	813	13%	593	12%	167	13%
Finances improved	309	2%	475	2%	905	2%	993	3%	683	3%	224	4%	188	4%	64	5%
Promoted at work	189	1%	562	2%	1812	4%	2610	7%	1969	9%	526	8%	364	7%	87	7%
Birth of child	147	1%	355	2%	1496	4%	1506	4%	717	3%	162	3%	204	4%	41	3%
Just retired	627	4%	694	3%	695	2%	447	1%	301	1%	104	2%	91	2%	26	2%
<b>N of each percentile group</b>	<b>12931</b>		<b>19382</b>		<b>32312</b>		<b>32316</b>		<b>20498</b>		<b>5901</b>		<b>4730</b>		<b>1174</b>	

Table A3: Count and percentage occurrence of life events by household wealth percentile

	Lowest 10		10 to 25		25 to 50		50 to 75		75 to 90		90 to 95		95 to 99		Top 1%	
<b>Average wealth</b>	\$624		\$2,613		\$7,652		\$31,137		\$117,859		\$312,045		\$707,203		\$2,397,784	
Death of spouse	93	1%	143	1%	252	1%	241	1%	194	1%	51	1%	29	1%	4	0.3%
Death of relative	1523	9%	2275	9%	3891	9%	3239	9%	2081	10%	706	10%	534	9%	118	9%
Injury to self	1127	7%	1686	7%	2863	7%	2525	7%	1619	7%	610	9%	468	8%	96	7%
Just sent to jail	37	0.2%	44	0.2%	83	0.2%	50	0.1%	41	0.2%	12	0.2%	8	0.1%	3	0.2%
Injury to a friend	2063	13%	3102	13%	5609	13%	4754	14%	2990	14%	1043	15%	794	14%	196	14%
Victim of property crime	613	4%	902	4%	1577	4%	1391	4%	769	4%	324	5%	227	4%	56	4%
Victim of violence	246	2%	301	1%	590	1%	473	1%	305	1%	96	1%	72	1%	14	1%
Just separated	535	3%	863	4%	1487	3%	1041	3%	667	3%	182	3%	168	3%	49	4%
Reconciled with partner	153	1%	249	1%	410	1%	247	1%	155	1%	53	1%	54	1%	9	1%
Dismissed from job	419	3%	671	3%	1102	3%	865	2%	504	2%	175	2%	125	2%	30	2%
Finances worsening	380	2%	600	2%	1091	3%	896	3%	597	3%	180	3%	163	3%	48	4%
Death of a friend	1331	8%	2158	9%	3573	8%	3366	10%	2115	10%	778	11%	583	10%	166	12%
Friend jailed	194	1%	286	1%	521	1%	401	1%	236	1%	74	1%	60	1%	14	1%
Just married	352	2%	541	2%	910	2%	667	2%	428	2%	128	2%	111	2%	16	1%
Changed jobs	2043	13%	2937	12%	4845	11%	3861	11%	2355	11%	701	10%	566	10%	123	9%
Just pregnant	741	5%	1161	5%	1968	5%	1557	4%	899	4%	252	4%	229	4%	50	4%
Moved house	2377	15%	3497	14%	6460	15%	4896	14%	2956	14%	929	13%	723	13%	190	14%
Finances improved	392	2%	555	2%	1005	2%	882	3%	576	3%	210	3%	160	3%	61	4%
Promoted at work	944	6%	1353	6%	2435	6%	1761	5%	1029	5%	294	4%	247	4%	56	4%
Birth of child	471	3%	818	3%	1332	3%	1015	3%	623	3%	188	3%	151	3%	30	2%
Just retired	255	2%	433	2%	759	2%	662	2%	534	2%	145	2%	164	3%	33	2%
N of each percentile group	13393		20173		34093		29905		19133		6354		4974		1219	

Note: Percentage occurrences of a life event are by percentile group

Table A4: Controls and volunteering

	Tobit (A1)	OLS (fixed effects) (A2)
Female	1.440*** (0.084) 0.26	-0.205* (0.100)
Age in years	0.111*** (0.004) 0.02	0.019*** (0.004)
Ln household income	-0.241*** (0.041) -0.044	-0.012 (0.011)
Years of education	0.683*** (0.022) 0.124	0.059* (0.023)
Health	0.927*** (0.048) 0.168	0.042** (0.016)
Disability	0.081 (0.109) 0.015	-0.015 (0.031)
Number of children	1.010*** (0.041) 0.183	0.054** (0.020)
Married	0.462** (0.146) 0.084	-0.366*** (0.060)
Separated	-0.638* (0.259) -0.115	-0.465*** (0.100)
Divorced	-1.114*** (0.189) -0.201	-0.515*** (0.102)
Widowed	-1.115*** (0.241) -0.201	-0.142 (0.192)
In relationship but unmarried	-2.455*** (0.188) -0.444	-0.196*** (0.040)
Employed	-1.590*** (0.122) -0.287	-0.443*** (0.046)
Unemployed	0.866*** (0.250) 0.157	0.091 (0.069)
Retired	0.675*** (0.164) 0.122	0.286*** (0.080)
N	129244	129244
Pseudo R-squared /R-squared	0.023	0.005

Table A5: Wealth and volunteering:

	Tobit 7.	OLS 8.
<b>Controls</b>	yes	yes
Ln of total current value of trusts	0.111** (0.035) <i>0.020</i>	0.001 (0.006)
Ln of total current value of all investments	0.113*** (0.013) <i>0.020</i>	0.002 (0.003)
Ln of home value	0.080* (0.008) <i>0.015</i>	<i>0.006*</i> (0.002)
N	129244	129244
Pseudo R-squared	0.025	
R-squared		0.005

Notes: OLS regressions are with fixed effects. Standard errors in parentheses; marginal effects in italics; \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

## Notes

<sup>1</sup> <https://www.dosomething.org/jokes>

<sup>2</sup> See Australian's Bureau of Statistics' *Australian National Accounts: Non-Profit Institutions Satellite Account*, available at [http://www.ausstats.abs.gov.au/ausstats/subscriber.nsf/0/661F486077ACD72BCA2576340019C6C8/\\$File/52560\\_2006-07.pdf](http://www.ausstats.abs.gov.au/ausstats/subscriber.nsf/0/661F486077ACD72BCA2576340019C6C8/$File/52560_2006-07.pdf)

<sup>3</sup> See also Gidron (1978).

<sup>4</sup> As measured by the following survey item: 'We now would like you to think about major events that have happened in your life over the past 12 months. For each statement cross either the YES box or the NO box to indicate whether each event happened during the past 12 months'.

<sup>5</sup> Measured as follows: "Major improvement in financial situation (e.g., won lottery, received an inheritance). Major worsening in financial situation (e.g., went bankrupt)".

<sup>6</sup> For a discussion of volunteering as a job search strategy, see Strauss (2008).

<sup>7</sup> The questionnaire for Wave 1 of the HILDA panel survey did not include the life event shocks used in this study.

<sup>8</sup> This paper uses unit record data from the Household, Income and Labour Dynamics in Australia (HILDA) Survey. The HILDA project was initiated and is funded by the Australian Government Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA) and is managed by the Melbourne Institute of Applied Economic and Social Research (MIAESR). The findings and views reported in this paper are those of the authors and should not be attributed to either FaHCSIA or the MIAESR. We thank FaHCSIA & the Melbourne Institute director, Professor Deborah Cobb-Clark, and her staff for making the data available.