

Evaluation of the Relationship Changes between the Subjective Well-Being and Prosocial  
Actions – 2003-2013

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Major Paper presented to the  
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In partial fulfillment of the requirements of the M.A Degree  
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September 2017

## **Abstract**

In this paper, I provide empirical evidence of the positive association between the subjective well-being (SWB) of individuals and acting in a prosocial manner using the 2013 and 2003 large-scale Canadian data sets obtained from the General Social Survey (GSS) Cycle 17 and GSS Cycle 22. Using the ordinary least squares method for estimating the unknown parameters the results suggest that the association between acting in a prosocial way and one's self-rated life satisfaction has decreased between 2003 and 2013 and thus indicating a shift away from acting in a prosocial way as an approach to achieving greater subjective well-being.

## **Introduction**

One dominant human interest can be associated with the pursuit of a happy life, a life in which one is satisfied with. A continuously growing body of academic research and literature surrounds this particular human want in which many scholars agree upon key characteristics that are related to greater life satisfaction amongst individuals. Moreover, many areas of this complex and widely researched topic are still to be evaluated and new features to be evaluated will undoubtedly emerge in consequence of the continuously changing environment in which people interact with this world.

Due to the significant and increasing amount of research conducted about the life satisfaction of individuals, many groups responsible for decisions that affect others such as policymakers and management positions are taking into account the life satisfaction impact that their decisions will have on the population in question. Measures of societal progress, the measure of well-being of a national population and ways to generate a healthy and fruitful organization can all be generated from data regarding life satisfaction.

Since the importance related to the measurement of subjective well-being has surfaced, a greater demand for questions related to this topic has taken place. Statistics Canada has included questions related to life satisfaction in its survey for the past 25 years. Since 2003, the question related to life satisfaction has been very consistent in both the General Social Survey and the Canadian Community Health Survey (CCHS) (Aneta, Helliwell, Hou, & Grant, 2014). Additionally, both of these surveys have a large number of questions that cover an excessive spectrum of interests. Hence, a platform for insightful research to be conducted on numerous topics takes place due to the richness of these surveys.

Some research provides evidence that increasing the overall life satisfaction of a national population would be a task achieved with great difficulty. For example, (Easterlin, 1995)

demonstrates that the United States has not experienced an improvement in happiness between the post-world war II period and 1991. Moreover, Japan, despite seeing their real capita income multiplied five-fold between 1958 and 1987 did not experience an improvement in mean subjective well-being (Easterlin, 1995) during this period. As for Canada, the mean score for self-rated life satisfaction between 2003 and 2013 is illustrated in Table 1.

**Table 1: Mean of self-rated life satisfaction score <sup>1</sup>**

<b>Year</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
<b>Mean SWB</b>	7.903	N/A <sup>2</sup>	7.734	7.976	8.073 <sup>3</sup>	7.909	8.319	7.601	8.111	7.934	8.027

As presented in Table 1, no pattern or trend seems to emerge from the mean life satisfaction score between 2003 and 2013 in which the question regarding subjective well-being was very consistent. Furthermore, (Aneta, Helliwell, Hou, & Grant, 2014) argue that the variation found between 2003 and 2011 could essentially be attributed to survey context rather than changes in macroeconomic and social conditions. (Lyubomirsky, Sheldon, & Schkade, 2005) Point out three common pessimistic explanations as to why the mean well-being has been largely flat over the years. The *genetically determined set point (or set rage) for happiness* is one explanation where a widely accepted figure of 50% constitutes of the heritability of well-being suggesting that there is a chronic or characteristic level of happiness. The second justification consists of *personality traits*, arguing that individuals maintain the same relative level of happiness over time due to the close association between personality traits and well-being<sup>4</sup>. The third argument supporting this

<sup>1</sup> Results illustrated in table 1 are obtained from the General Social Survey from 2003-2013.

<sup>2</sup> A question on life satisfaction was not included in the 2004 GSS (Victimization).

<sup>3</sup> The sample for 2007 GSS was restricted to persons aged 45 or older.

<sup>4</sup> Examples of personality traits are Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness. These are often referred to as "the Big Five personality traits" and are widely recognized as an empirically driven and useful characterization of personality (Binder & Freytag, 2013)( (McCrae & Costa, 2003). Furthermore, there is

pessimist view is with regards to the concept of *hedonic adaptations* which explains that any boost in well-being is only temporary since humans quickly adapt to change.

Despite these justifications outlined above, research supporting a more optimistic view has emerged in recent years and will be discussed in the following section. Therefore, despite the mean self-rated life satisfaction score not demonstrating any particular change in magnitude, this paper will seek to evaluate if the relationship between acting in a prosocial way and the self-rated life satisfaction score has been subject to any changes between 2003 and 2013. Section two of the paper consist of the literature review. Section three presents the data and descriptive statistics. Section four discusses the methodology, while section five and six are the results and conclusion, respectively.

## **2. Literature Review**

This section will cover important areas of past academic papers related to the question at hand. Research supporting the benefits of prosocial actions on individuals' well-being; the exploration of causal relationships; and evidence supporting the suitability of long-term increases in well-being will be covered.

Much research regarding the relationship between income and happiness has been conducted over the years. In a fairly recent study (Dunn, Aknin, & Norton, 2008) illustrate that the allocation of one's income is a significant factor affecting one's happiness level in the United States. They found that spending more of one's income on others rather than themselves generated greater happiness levels. This finding was supported by a nationally representative cross-sectional

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evidence that these five traits are quite stable from the age of thirty and onwards or only change slowly over the course of one's life (Costa & McCrae, 1994) ( Hampson & Goldberg, 2006).

and longitudinal analysis. Furthermore, a subsequent component of their research was conducted to evaluate the causality of their findings where individuals' participating in the experiment were subject to a windfall of money. Post windfall happiness scores were greater amongst participants who were instructed to spend a small sum of money – either \$5 or \$20 – on someone else or a charity compared to participants instructed to spend it on themselves. Hence, their findings provide evidence that how someone chooses to spend their money can positively influence their happiness.

With evidence that happiness levels increase following a donation, (Aknin, Dunn, & Norton, 2012) seek to test if such happiness can be sustained through the existence of a positive feedback loop between spending money on others and happiness. Using responses from students at the University of British Columbia campus as their data, Aknin et al. found that: reflecting on past prosocial spending increases individuals' happiness levels; there is a positive correlation between individuals' happiness levels and their likelihood of spending money in a prosocial way; and recalling a past experience of prosocial spending increased the likelihood that participants further engaged in prosocial spending, but only if the initial action generated a positive emotion. Therefore, the ability to recall a prosocial action to generate positive feelings suggests that such actions may be self-reinforcing and could offer sustainable happiness. Furthermore, it suggests that happiness experienced after the kind deed may be key to determining if another kind deed is to follow the first one.

A significant amount of research supporting the association between volunteering and well-being has been done. For example (Borgonovi, 2008; Meier & Stutzer, 2008) all report a positive relationship between the two variables in question. It is also important to note that one's motivation to volunteer; personality traits; social context; and demographic factors can all influence one's quantity of volunteer work and the degree to which one will benefit from it (Binder & Freytag,

2013) (Bekkers, 2010). Using the Family Survey of the Dutch population, 2000, Bekkers found that individuals personality traits are important factors affecting volunteering with *agreeableness* and *extraversion* having the greatest association. In his research, he also found that *emotional stability* and *emphatic concerned* individuals were both characteristics possessed by people willing to give some of their time and money. Furthermore, Bekkers found that acting in a prosocial manner was more likely if the request was relatively small and requested by a person of small social distance. As for demographic finding, a positive correlation was found between education and prosocial action, however, concerning the opportunity cost of time, a higher wage made volunteering less attractive while making giving charitable donations more attractive.

Binder & Freytag, 2013 further contributed to the literature by examining:

- The relationship between well-being and volunteer work while controlling for individuals who only volunteer for social reasons.
- The causal impact of volunteering on subjective well-being.
- Whether or not the focus on the conditional mean of the dependent variable provides a good summary picture of the volunteering-happiness relationship.

Using the large-scale British Household Panel Survey data set and controlling for a variety of different variables including social networks; stable personality traits; and trust, Binder & Freytag found that the well-being of respondents embodied in their sample was significantly and positively affected by regular volunteering. Moreover, using two different types of matching – propensity score matching and nearest-neighbor matching – Binder and Freytag were not only able to provide evidence of a causal relationship between monthly or weekly consistent volunteering on subjective well-being but also seem to suggest increasing returns to happiness. Consequently, these results further reinforce the hypothesis that frequent and consistent volunteering is not subject to hedonic

adaptation, however, it also does not suggest a mutually reinforcing circle where volunteers get happier and then engage in more volunteering and so on.<sup>5</sup> The final component of their research sought to evaluate the impact of volunteering for different quantiles of the subjective well-being distribution. After reporting the 10%, 25%, 50%, 75% and 90% quantiles they noted that the conditional mean of the dependent variable does not seem to capture the effect well. Notably, an association was only found in the lower three quantiles of the subjective well-being distribution, suggesting that happy individuals derive their happiness from other sources than volunteering.

In recent years, further research regarding the suitability of long-term happiness and the strategies linked to such quest has emerged. The work of (Seligman, Steen, Park, & Peterson, 2005) shed some light on this regard by providing evidence that several strategies that temporary boost well-being would only be sustained if they were repeated on a regular basis. In a randomized, placebo-controlled internet study, five different psychological intervention techniques were tested where participants were prescribed the exercise for one week. Seligman et al. found that two of the exercises – writing about three good things that happened each day and why they happened, and using signature strengths of character in a new way – decreased depressive symptoms and increased happiness for six months. They conclude that the degree to which participants continued the exercises following the prescribed duration was what reflected the long-term benefits. Moreover, using three different studies which implements weekly or daily diaries, (Emmons & McCullough, 2003) argue that practicing gratitude – which is one strategy to boost well-being – is also subject to a temporary increase in well-being if it is not practiced regularly. However, when comparing mean effect size of their different studies, Emmons and McCullough found that

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<sup>5</sup> Evidence of the mutually reinforcing circle cannot be made in their research since volunteering is held constant after being changed in their treatment conditions.

participants who wrote down what they were grateful for on a daily basis gained more from the exercise in comparison to participants who wrote down in their gratitude journal on a weekly basis. Hence, both of these studies provide evidence that greater long-term levels of well-being can be achieved with consistent use of proper strategies.

Building on past literature regarding well-being, (Lyubomirsky, Sheldon, & Schkade, 2005) argue that one's chronic level of happiness is based three dominant factors with *happiness-relevant activities and practices* offering the most promising opportunity to sustainably increase happiness levels. The other two factors related to one's chronic level of happiness constitute of *genetically determined set point for happiness* and *happiness-relevant circumstantial factors*.<sup>6</sup> More specifically, Lyubomirsky et al. argue that intentional behavioral, cognitive, or volitional activity offers the best potential route to sustainably increase well-being due in part to the activity being episodic, variable, and counteractive to adaptation. Furthermore, the authors suggest that choosing the best activity that fits one's personality would be valuable since not all strategies will evenly benefit everyone and it will be easier to initiate and maintain.

Hence, the positive association between well-being and prosocial actions (i.e., giving some of your time and/or money) is well documented. Research seeking to find ways to sustainably increase well-being has emerged in more recent years with a growing amount of strategies offering guidance to such path. Despite variation in the strategies, a shared concept to achieve a sustainable increase in well-being appears to be consistently practicing such strategies. Additionally, some

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<sup>6</sup> Based on past research, Lyubomirsky et al. state that approximately 50% of the population variation in cross-sectional well-being is attributed to genetics, while circumstance and intentional activities account for approximately 40% and 10%, respectively.

research supporting the casual relationship between acting in a prosocial way and increased well-being is present in more recent academic papers. Despite a trend taking place in some developed countries – including Canada – where the mean level of well-being is relatively flat over the years; some research certainly seems to suggest that deriving from such stationary trend would be achievable. Therefore, my contribution to the literature is evaluating the change in magnitude that acting in a prosocial way has on the mean self-rated life satisfaction score between 2003 and 2013 in Canada.

### **3. Data & Descriptive Statistics**

In this section, I provide an overview of the three data sets used in this paper. The data sets utilized consist of the 2003 GSS Cycle 17: Social Engagement; the 2008 GSS Cycle 22: Social Networks; and the 2013 GSS Cycle 27: Giving, Volunteering and Participating.

The GSS is a Canadian survey; it has two primary purposes: (1) to monitor the changes in Canadians well-being and living conditions over time through the gathering of the data, and (2) to provide information for present and developing interest regarding precise social policy issues. The first GSS was in 1985 and has been a yearly Canadian survey since. Each survey contains a set of socio-demographic questions and each year has a specific subject of interest that is attributed to the survey. The population of interest consists of non-institutionalized Canadian individuals over the age of 14 year's old living in private households in either of the ten Canadian provinces. Additionally, the data is obtained through computer-assisted telephone interviewing; hence, individuals living in households without a telephone are excluded from this survey. Consequently,

the coverage rate for the 2003 GSS is 98%. As for the 2008 and the 2013 survey, the coverage rate is 92.7% and 88% respectively.<sup>7</sup>

More precisely, the purpose of the GSS Cycle 27: Giving, Volunteering and Participating is to provide both governmental and volunteer sectors with Canadian data that will allow them to make policy and program decisions based on the trends and behaviors of Canadians regarding charitable donations, volunteering and public engagement. As for the GSS Cycle 22: Social Networks, the collection of the data is oriented towards social engagement and social networks, it was also the second cycle oriented towards social engagement, cycle 17 being the first one. Additionally, all three surveys have a cross-sectional design in which individuals consist of the unit of observation. The 2003, 2008 and 2013 survey contains 24,951; 20,401; and 14,714 observations respectively. Furthermore, responding to this survey is voluntary and has a 78% response rate for 2003 while the 2008 and 2013 survey has a response rate of 57.3% and 46% respectively.

For this paper, all of the regressions will have the same dependent variable which is the measure of the subjective well-being of individuals. In the GSS Cycle 22 and Cycle 17, the interviewer asks "Using a scale of 1 to 10 where 1 means 'Very dissatisfied' and 10 means 'Very satisfied', how do you feel about your life as a whole right now?" As for the GSS cycle 27, the wording is essentially identical; however, the scale utilized is from 0 to 10. This variable is then a

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<sup>7</sup> For the 2003 survey, the coverage rate is associated to the rates of telephone services, including both cellular and landline phone. As for the 2008 survey, interviews are not conducted by cellular phone, therefore, individuals with only cellular phone coverage are excluded from the survey. For the 2013 survey, it is estimated that only 1% of the population does not have telephone coverage and the remaining 11% of under-coverage are households possessing at least one telephone number with the majority of them having only cellular telephone numbers.

continuous variable with a maximum of 10 and a minimum of 1 (or 0) in which an increase of one point has the same meaning regardless of the position along the scale.

### 3.1 sample restrictions

For the 2013 data set, individuals who responded "don't know"; who did not state a response or refuse to answer the question regarding their life satisfaction are removed from the sample. The same procedure is applied to the question regarding their: self-assessed health; immigrant status; and marital status. Moreover, individuals are removed from the sample if their labor force status was unable to be determined during the reference week.<sup>8</sup> Lastly, if individuals did not state their highest certificate, diploma or degree of education completed, they are also removed from the sample.

As for the 2008 and 2003 data sets, while some restrictions have been added due to the structure of the survey, many of the same restrictions take place. As for the added restrictions, individuals were removed if they responded "don't know" or did not state a response to either of the question regarding their volunteer work or charitable donations. The same procedure is applied to the question regarding the highest level of education obtained by the respondent; and total household income. One exception is that the 2003 data set does not contain information regarding the labor force status; therefore no restrictions were imposed regarding this specific criteria. All of these restrictions are easily justifiable because without this information I cannot attribute these

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<sup>8</sup> The three other categorical options for this questions are: (1) employed, (2) unemployed and (3) not in labor force. These classifications are based on the Labour Force Survey.

individuals to a specific, measurable group. Once all of the restrictions are applied, I am left with usable samples of 13,583 and 18,584 for 2013 and 2003, respectively.<sup>9</sup>

Table 2 shows the mean and standard deviation of the variables used for the empirical analysis. The mean for the self-rated life satisfaction variable is 8.033 and 7.666 for 2013 and 2003, respectively. As for the prosocial behavior, four different variables were used to capture the different degree of prosocial actions. *Prosocial\_0* is the most inclusive variable, it consists of individuals who are either a volunteer, a financial giver, or both, and with a mean of 0.877, we see that a substantial majority of respondents fall into this category. *Prosocial\_1* are individuals who are volunteers and financial givers, both actions are required for this variable, and it has a mean of 0.386. *Prosocial\_2* captures respondents who are volunteers but not financial givers, while *prosocial\_3* represents those who are not volunteers but the financial giver, their means are 0.049 and 0.441, respectively. It should be noted that the status of volunteer and financial giver are given when a respondent answers “yes” to at least one of the questions categorizing these two groups in the past twelve months. Appendix B and Appendix C provide a complete list of these questions.

#### 4. Methodology

The econometric model takes the following form:

$$lifesatisfaction_i = \alpha_i + prosocial_0_i \beta + X_i * \phi + \varepsilon_i \quad (1)$$

$$lifesatisfaction_i = \alpha_i + prosocial_1_i \beta + X_i * \phi + \varepsilon_i \quad (2)$$

$$lifesatisfaction_i = \alpha_i + prosocial_2_i \beta + X_i * \phi + \varepsilon_i \quad (3)$$

$$lifesatisfaction_i = \alpha_i + prosocial_3_i \beta + X_i * \phi + \varepsilon_i \quad (4)$$

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<sup>9</sup> The 2008 survey is only used as mean to justify the validity of the 2003 survey which does not contain information on the labor force status of the respondents. Further discussion of this topic takes place in the subsequent section.

where  $lifesatisfaction_i$  is the measure of the subjective well-being for individual  $i$ . Since four different categorizations of prosocial action are used, four different specifications are estimated for each year (2003 and 2013) using ordinary least squares. All of the prosocial variables are binary variables that take the value of one (1) if the respondent falls within the respective category as described above.  $\beta$  is the coefficient to be estimated for the particular prosocial variable.  $X_i$  is a vector of the remaining explanatory variables reflecting characteristics of the  $i^{th}$  observation such as the health in general of respondents; highest education obtained; marital status; age group; household income; gender; the province of residence; household size; and the place of birth of respondents. All of the explanatory variables are either binary variables (i.e., gender and place of birth of respondents) or categorical variables. Three interaction terms are also part of the vector of the explanatory variables. The three interaction variables are *gender\*household income group*; *age group\*marital status*; and *age group\*household income group*.  $\varphi$  represents a vector of coefficients to be estimated whereas  $\alpha_i$  and  $\varepsilon_i$  denote a constant term implying the performance of the reference group while holding all the other variables fixed and a normal error term with zero mean and the variance of  $\sigma^2$ , respectively.

Once the estimated coefficients from the models are obtained, I can analyze if any changes are taking place with regards to the role that acting in a prosocial way has on the subjective well-being of individuals based on a given reference group. The reference group is a 45-54-year-old married male who was born in Canada, has a university degree, resides in the province of Ontario in a household of two individuals with a household income of \$60,000-\$79,999 and rates his general health as being very good.

Although the labor force status is a variable of significance when evaluating the life satisfaction of individuals, the inclusion of this variable was not possible since unlike the 2013 and

2008 data set, the 2003 data set does not contain this particular information. Despite this, I argue that the exclusion of this variable in my analysis is not detrimental. To arrive at such conclusion, I tested the parity of the common coefficients across two different models (with and without the labor force variable) for both 2013 and 2008 data set. Using the Hausman test via *suest*, I could not reject the equality of the common coefficients with  $\text{prob}>F= 1.000$  in all four of the specification in both data sets. Therefore, the results obtained from the 2003 data which does not contain the labor force information should still be considered as relevant.

## 5. Results

Table 3 and Table 4 report the estimated coefficients from the ordinary least squares estimates for the 2003 and 2013 data set. With these two tables, I can analyze the changes that the key variables were subject to within a ten-year span while paying particular interest to the relationship that acting in a prosocial way has on the self-rated life satisfaction of individuals. All the following interpretations of estimated coefficients are based on *ceteris paribus* assumptions and in all cases the data are weighted by Statistics Canada person-weights.

As illustrated from Table 3 (2003), all four of the prosocial variables are statistically significant at the 0.1% level. Some interesting results are worth further discussion. The more restrictive variable (*prosocial\_1*) has the largest estimated coefficient out of the four with an estimated coefficient of 0.219. Furthermore, in comparison to all other three prosocial variables, this estimated coefficient is significantly larger in magnitude with the second largest estimate being 0.117 and belonging to the *prosocial\_2* variable (only being flagged as a volunteer). These results align well with the literature since individuals need to engage in both volunteer work and make charitable contributions to fall within this specific category but those who are only flagged for one of two actions are excluded. Therefore, despite the relative ease to be flagged a *volunteer* or a

*financial giver* based on the required characteristics for both statuses, I attribute this variable as the one illustrating the most prosocial action. Interestingly, only being flagged a financial giver (prosocial\_3) has a negative association with one's self-rated life satisfaction. Although this paper does not seek to analyze the reasoning behind this particular link, the negative estimated coefficient is statistically significant for the 2003, and 2013 data at the 0.1% level and 1% level and both coefficients are also of economic significance with their estimates being -0.138 and -0.112, respectively.

As illustrated in Table 4 (2013), all four estimates experience a decrease in magnitude when comparing them to the 2003 estimates, and only the prosocial\_1 and prosocial\_3 variables remain statistically significant. Notably, prosocial\_1 experiences a significant decrease, dropping to 0.152 while maintaining the same level of statistical significance (0.1%) as the 2003 data. Hence, these results suggest that the link between acting in a prosocial way and one's self-rated life satisfaction has decreased over the span of ten years (between 2003 and 2013). This statement is further reinforced because the mean life satisfaction score is larger in 2013 than in 2003 (from 7.666 to 8.033, respectively), and thus suggesting a shift away from acting in a prosocial way as an approach to achieving greater subjective well-being.

Another variable of worthy discussion is the strong positive association between one's subjective well-being and one's self-assessed general health. Across all four specifications in both data sets, this variable remains economically significant and statistically significant at the 0.1% level. Furthermore, it should be noted that the question regarding the general health of individuals means not only the absence of disease or injury but also physical, mental and social well-being. From 2003 to 2013 this variable faced an increase in magnitude throughout all four specifications, with the range in magnitude shifting from 0.492-0.498 to 0.546-0.549, respectively.

A negative relationship takes place between the SWB of individuals and the higher level of education they obtained. At first, this result may appear surprising, although given that I controlled for income, which is arguably one of the largest incentive to obtain further education, this result makes greater intuitive sense and a similar association is also present in the literature, for example (Aneta, Helliwell, Hou, & Grant, 2014). As for the marital status of respondents, a certain shift seems to take place. In the 2003 results, either: living common-law; being divorced; separated; or single, never married, all had a statistically and economically significant negative association with the SWB of individuals when compared to married individuals, *ceteris paribus*. However, this significant negative association no longer takes place amongst individuals living common-law or those who are widowed compared to married individuals in the 2013 estimates, *ceteris paribus*.

### 5.1 Robustness check

In order to verify the robustness of my results, four different specifications were conducted.

Specification 1: The main model with the exclusion of the education variable.

Specification 2: The main model with the exclusion of the marital status variable.

Specification 3: Only six variables: prosocial variable; self-rated health; education; marital status; age; and household income.

Specification 4: The main model with the exclusion of the self-rated health variable.

As illustrated by Table 5 (2003 data set), the different specifications suggest that the estimates are fairly robust. All of the four prosocial variables remain statistically significant at the 0.1%. Furthermore, the magnitude of the coefficients only suffers moderate changes (see the last column) in comparison to the original specification while keeping their respective association with the SWB variable.

**Table 5: Robustness Check – 2003**

	Original Specification	Robustness Check #1	Robustness Check #2	Robustness Check #3	Robustness Check #4	Largest Change
Prosocial_0	0.110***	0.0818***	0.118***	0.138***	0.148***	0.038
Prosocial_1	0.219***	0.189***	0.228***	0.251***	0.275***	0.056
Prosocial_2	0.117***	0.118***	0.113***	0.113***	0.143***	0.026
Prosocial_3	-0.138***	-0.131***	-.0140***	-0.150***	-0.167***	0.029

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

**Table 6: Robustness check – 2013**

	Original model	Robustness Check #1	Robustness Check #2	Robustness Check #3	Robustness Check #4	Largest Change – Excluding Robustness check #4	Largest Change
Prosocial_0	0.0728	0.0558	0.0970	0.0686	0.236**	-	-
Prosocial_1	0.156***	0.139***	0.169***	0.154***	0.284***	0.03	0.128
Prosocial_2	-0.0232	-0.0140	-0.0866	-0.0645	0.914	-	-
Prosocial_3	-0.112**	-0.106**	-0.100**	-0.105**	-0.184**	0.012	0.072

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

As demonstrated by Table 6, conducting the same robustness checks with the 2013 data set yields a similar conclusion except for the fourth robustness check. With the exclusion of the fourth robustness check, all of the prosocial variables that were statistically significant (prosocial\_1 and

prosocial\_3) remain statistically significant at their respective level following their respective modification. Moreover, the magnitudes of the coefficients are only subject to a small deviation from the original specification while keeping their respective association with the dependent variable. However, the estimated coefficients are no longer robust following the exclusion of the health variable from the original model. With the exclusion of the health variable, the prosocial\_0 variable becomes statistically and economically significant. Despite, remaining statistically significant at the 0.1% level, the magnitude of the prosocial\_1 variable increases considerably. The prosocial\_2 variable remains statistically insignificant whereas the prosocial\_3 variable suffers the smallest change in magnitude while remaining statistically significant at the 1% level.

## **6. Conclusion**

Research has demonstrated that the well-being of individuals can be temporarily increased with the use of proper strategies. Subsequently, some researchers provide evidence that a sustainable increase is indeed feasible by selectively choosing strategies that align with the personality of the individuals seeking such improvement and consistently applying such techniques. Importantly, acting in a prosocial way is one of the strategies supported by academics for generating such benefits. Despite this, little to no variation in the mean well-being of individuals occurs over the years in many developed countries including Canada.

Using data obtained from the General Social Surveys, I was able to estimate the relationship between the subjective well-being of respondents and prosocial actions and found a positive relationship between the two. Furthermore, my results suggest a weakening in the correlation between the two groups of variables in questions between 2003 and 2013.

Additionally, it is important to highlight that given the cross-sectional design of the General Social Survey, my results are a non-casual interpretation. One option to provide an estimate of the causal effect of volunteering on individuals' well-being would require access to a panel data set. Such access would enable a causal interpretation of the estimators obtained through the use of econometric techniques such as *propensity score matching* or *nearest-neighbor matching* which were both implemented by Binder & Freytag in their 2013 academic paper using the large-scale British Household Panel Survey data set.

On a final note, it is important to shed some light on a few other limitations of this paper. As discussed by (Binder & Freytag, 2013), using the overall mean SWB of respondents instead of quintiles to evaluate the link with prosocial actions may not be providing the best illustration of the relationship as individuals with different SWB may benefit differently from acting in a prosocial manner. Secondly, the requirements used to be flagged a volunteer or a financial giver are relatively low which allows for a large variation in the degree of prosocial actions that individuals perform, and therefore, future research with more strict requirements would be of interest.

## Appendix A – Tables

**Table 2: Summary Statistics**

Variables	Mean – 2013	Mean – 2003
<i>A. Life Satisfaction</i>		
Self-rated scale	8.033 (1.663869)	7.666 (1.950675)
<i>B. Prosocial Behavior</i>		
prosocial_0	0.877 (.3288085)	0.819 (.3848487)
prosocial_1	0.386 (.4869408)	0.304 (.4600886)
prosocial_2	0.0494 (.2167837)	0.0503 (.218538)
prosocial_3	0.441 (.496508)	0.465 (.4987666)
<i>C. Health Score</i>		
Excellent	.2639305 (.4407783)	.2803837 (.4491988)
Very Good	.3555357 (.4786929)	.3648954 (.4814138)
Good	.262035 (.4397578)	.2553343 (.4360607)
Fair	.0885506 (.2841045)	.0769303 (.2664879)
Poor	.0299481 (.1704506)	.0224563 (.1481661)
<i>D. Education</i>		
Less than high school	.126401 (.332313)	.1868687 (.3898166)
Graduated High school	.3044987 (.4602117)	.1361029 (.342907)
Some university/ community college	- -	.1739132 (.379045)
Post-secondary diploma	.3149955 (.4645312)	.2626707 (.4400968)
University Diploma	.2541048 (.4353728)	.2404446 (.427365)
<i>E. Marital status of respondent</i>		
Married	.506506 (.4999761)	.5413072 (.4983042)
Living common law	.1079399 (.310316)	.1126084 (.316122)

Widowed	.0442497 (.2056569)	.0379237 (.191017)
Separated	.0214086 (.1447474)	.0262233 (.1598032)
Divorced	.0437982 (.2046533)	.0489703 (.2158117)
Single, never married	.2760976 (.4470821)	.232967 (.4227328)
<i>F. Age group of respondent</i>		
15 to 24	.1597867 (.3664216)	.1348459 (.3415681)
25 to 34	.1689425 (.3747149)	.190059 (.3923581)
35 to 44	.1604271 (.3670153)	.2298387 (.4207403)
45 to 54	.1794669 (.3837569)	.202025 (.4015216)
55 to 64	.1585563 (.3652753)	.1298269 (.3361219)
65 to 74	.1019249 (.3025607)	.0704306 (.2558783)
75 years old and over	.0708955 (.2566597)	.042974 (.2028039)
<i>G. Sex of respondent (female = 2; male=1)</i>		
	1.506 (.4999871)	1.488 (.4998584)
<i>H. Household size of respondent</i>		
	2.931 (1.316352)	2.936 (1.338647)
<i>I. Place of birth of respondent - (Born in Canada=1; born outside Canada =2)</i>		
	1.213 (.409641)	1.198 (0.000649)
<b>Observations</b>	<b>13,583</b>	<b>18,584</b>

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Standard deviations are in parentheses.

**Table 3: Coefficients from life satisfaction ordinary least squares regressions – 2003**

Explanatory Variables	(1)	(2)	(3)	(4)
<i>A. Prosocial Behavior</i>				
prosocial_0	0.110*** (0.00882)			
prosocial_1		0.219*** (0.00668)		
prosocial_2			0.117*** (0.0141)	
prosocial_3				-0.138*** (0.00653)
<i>B. Health Score</i>				
Excellent	0.498*** (0.00726)	0.494*** (0.00722)	0.495*** (0.00726)	0.492*** (0.00723)
Very good	0 (.)	0 (.)	0 (.)	0 (.)
Good	-0.393*** (0.00777)	-0.388*** (0.00778)	-0.396*** (0.00780)	-0.395*** (0.00781)
Fair	-1.084*** (0.0139)	-1.074*** (0.0139)	-1.087*** (0.0139)	-1.084*** (0.0139)
Poor	-2.194*** (0.0323)	-2.185*** (0.0322)	-2.203*** (0.0324)	-2.203*** (0.0324)
<i>C. Education</i>				
Less than high school	0.310*** (0.0119)	0.335*** (0.0119)	0.295*** (0.0119)	0.301*** (0.0119)
High school diploma	0.254*** (0.0108)	0.278*** (0.0109)	0.244*** (0.0107)	0.252*** (0.0108)
Some university/ community college	0.166*** (0.00988)	0.178*** (0.00992)	0.161*** (0.00988)	0.166*** (0.00988)
Diploma/certificate from community college or trade/technical	0.159*** (0.00930)	0.177*** (0.00940)	0.156*** (0.00930)	0.165*** (0.00938)
Doctorate/masters/bache lor's degree	0 (.)	0 (.)	0 (.)	0 (.)
<i>D. Marital Status</i>				
Married	0 (.)	0 (.)	0 (.)	0 (.)
Living common-law	-0.156*** (0.0334)	-0.148*** (0.0334)	-0.163*** (0.0334)	-0.162*** (0.0334)
Widowed	-0.230*** (0.0570)	-0.234*** (0.0568)	-0.219*** (0.0569)	-0.216*** (0.0567)
Separated	-0.601*** (0.0324)	-0.603*** (0.0327)	-0.608*** (0.0325)	-0.613*** (0.0326)
Divorced	-0.267*** (0.0259)	-0.258*** (0.0261)	-0.270*** (0.0259)	-0.266*** (0.0260)

Single (Never married)	-0.321*** (0.0272)	-0.310*** (0.0273)	-0.323*** (0.0273)	-0.317*** (0.0273)
<i>E. Age Group</i>				
15 to 24	0.429*** (0.0358)	0.443*** (0.0359)	0.410*** (0.0357)	0.408*** (0.0360)
25 to 34	0.151*** (0.0257)	0.172*** (0.0256)	0.146*** (0.0257)	0.156*** (0.0256)
35 to 44	0.0707** (0.0232)	0.0771** (0.0232)	0.0713** (0.0231)	0.0762** (0.0231)
45 to 54	0 (.)	0 (.)	0 (.)	0 (.)
55 to 64	0.437*** (0.0257)	0.439*** (0.0258)	0.442*** (0.0256)	0.445*** (0.0256)
65 to 74	0.509*** (0.0360)	0.458*** (0.0362)	0.520*** (0.0362)	0.494*** (0.0364)
75 years and over	0.316*** (0.0518)	0.325*** (0.0526)	0.322*** (0.0521)	0.333*** (0.0528)
<i>F. Household Income</i>				
No income or loss	-1.716*** (0.150)	-1.765*** (0.153)	-1.730*** (0.151)	-1.772*** (0.152)
Less than \$5,000	-0.638*** (0.146)	-0.656*** (0.148)	-0.675*** (0.144)	-0.705*** (0.144)
\$5,000 to \$9,999	-0.826*** (0.0537)	-0.836*** (0.0542)	-0.867*** (0.0540)	-0.893*** (0.0541)
\$10,000 to \$14,999	-1.511*** (0.0594)	-1.505*** (0.0592)	-1.545*** (0.0595)	-1.558*** (0.0593)
\$15,000 to \$19,999	0.0147 (0.0519)	0.0132 (0.0519)	-0.00903 (0.0518)	-0.0216 (0.0519)
\$20,000 to \$29,999	-0.265*** (0.0357)	-0.259*** (0.0357)	-0.280*** (0.0355)	-0.284*** (0.0355)
\$30,000 to \$39,999	-0.0467 (0.0388)	-0.0454 (0.0385)	-0.0553 (0.0387)	-0.0587 (0.0385)
\$40,000 to \$49,999	-0.0262 (0.0329)	-0.0156 (0.0332)	-0.0349 (0.0329)	-0.0320 (0.0331)
\$50,000 to \$59,999	-0.0496 (0.0336)	-0.0507 (0.0338)	-0.0509 (0.0335)	-0.0521 (0.0337)
\$60,000 to \$79,999	0 (.)	0 (.)	0 (.)	0 (.)
\$80,000 to \$99,999	-0.0607* (0.0304)	-0.0532 (0.0304)	-0.0586 (0.0305)	-0.0528 (0.0305)
\$100,000 or more	-0.0550* (0.0255)	-0.0524* (0.0256)	-0.0435 (0.0255)	-0.0356 (0.0255)
<i>G. Gender</i>				
Male	0 (.)	0 (.)	0 (.)	0 (.)

Female	-0.0735*** (0.0156)	-0.0825*** (0.0156)	-0.0637*** (0.0157)	-0.0637*** (0.0157)
<i>H. Provinces</i>				
Newfoundland and Labrador	0.292*** (0.0133)	0.284*** (0.0132)	0.304*** (0.0133)	0.304*** (0.0132)
Prince Edward Island	0.0744*** (0.0181)	0.0528** (0.0182)	0.0770*** (0.0182)	0.0640*** (0.0183)
Nova Scotia	0.103*** (0.0146)	0.0992*** (0.0145)	0.106*** (0.0147)	0.105*** (0.0146)
New Brunswick	0.228*** (0.0135)	0.224*** (0.0135)	0.232*** (0.0136)	0.231*** (0.0136)
Quebec	-0.308*** (0.00912)	-0.289** (0.00924)	-0.310*** (0.00919)	-0.300*** (0.00930)
Ontario	0 (.)	0 (.)	0 (.)	0 (.)
Manitoba	0.0458*** (0.0131)	0.0315* (0.0130)	0.0461*** (0.0131)	0.0368** (0.0131)
Saskatchewan	-0.0116 (0.0151)	-0.0304* (0.0149)	-0.0129 (0.0151)	-0.0241 (0.0150)
Alberta	-0.170*** (0.0115)	-0.184*** (0.0115)	-0.171*** (0.0115)	-0.182*** (0.0114)
British Columbia	0.0113 (0.00985)	0.00230 (0.00971)	0.0101 (0.00987)	0.00389 (0.00981)
<i>I. Household Size</i>				
One household member	-0.0209 (0.0109)	-0.0232* (0.0109)	-0.0189 (0.0109)	-0.0191 (0.0109)
Two household members	0 (.)	0 (.)	0 (.)	0 (.)
Three household members	-0.170*** (0.00992)	-0.172*** (0.00989)	-0.171*** (0.00994)	-0.173*** (0.00993)
Four household members	-0.270*** (0.0104)	-0.280*** (0.0103)	-0.271*** (0.0104)	-0.276*** (0.0103)
Five household members	-0.340*** (0.0142)	-0.351*** (0.0142)	-0.338*** (0.0143)	-0.342*** (0.0143)
Six household members or more	-0.508*** (0.0241)	-0.525*** (0.0238)	-0.509*** (0.0241)	-0.520*** (0.0240)
<i>J. Immigrant Status</i>				
Country of birth of the respondent.	-0.238*** (0.00896)	-0.222*** (0.00892)	-0.241*** (0.00895)	-0.234*** (0.00892)
<i>K. Gender*Household income</i>				
Male # No income or loss	0 (.)	0 (.)	0 (.)	0 (.)
Male # Less than \$5,000	0 (.)	0 (.)	0 (.)	0 (.)

Male # \$5,000 to \$9,999	0 (.)	0 (.)	0 (.)	0 (.)
Male # \$10,000 to \$14,999	0 (.)	0 (.)	0 (.)	0 (.)
Male # \$15,000 to \$19,999	0 (.)	0 (.)	0 (.)	0 (.)
Male # \$20,000 to \$29,999	0 (.)	0 (.)	0 (.)	0 (.)
Male # \$30,000 to \$39,999	0 (.)	0 (.)	0 (.)	0 (.)
Male # \$40,000 to \$49,999	0 (.)	0 (.)	0 (.)	0 (.)
Male # \$50,000 to \$59,999	0 (.)	0 (.)	0 (.)	0 (.)
Male # \$60,000 to \$79,999	0 (.)	0 (.)	0 (.)	0 (.)
Male # \$80,000 to \$99,999	0 (.)	0 (.)	0 (.)	0 (.)
Male # \$100,000 or more	0 (.)	0 (.)	0 (.)	0 (.)
Female # No income or loss	0.531*** (0.116)	0.537*** (0.115)	0.512*** (0.116)	0.509*** (0.116)
Female # Less than \$5,000	-0.189 (0.100)	-0.191 (0.101)	-0.188 (0.0994)	-0.187 (0.0992)
Female # \$5,000 to \$9,999	0.412*** (0.0478)	0.426*** (0.0479)	0.405*** (0.0479)	0.411*** (0.0482)
Female # \$10,000 to \$14,999	0.624*** (0.0374)	0.642*** (0.0372)	0.627*** (0.0374)	0.642*** (0.0373)
Female # \$15,000 to \$19,999	0.221*** (0.0382)	0.228*** (0.0380)	0.227*** (0.0381)	0.235*** (0.0381)
Female # \$20,000 to \$29,999	0.125*** (0.0255)	0.133*** (0.0255)	0.120*** (0.0255)	0.123*** (0.0256)
Female # \$30,000 to \$39,999	0.110*** (0.0241)	0.117*** (0.0239)	0.114*** (0.0241)	0.120*** (0.0241)
Female # \$40,000 to \$49,999	0.0391 (0.0225)	0.0378 (0.0225)	0.0419 (0.0226)	0.0417 (0.0226)
Female # \$50,000 to \$59,999	-0.107*** (0.0242)	-0.101*** (0.0243)	-0.106*** (0.0242)	-0.102*** (0.0242)
Female # \$60,000 to \$79,999	0 (.)	0 (.)	0 (.)	0 (.)
Female # \$80,000 to \$99,999	0.0784** (0.0247)	0.0802** (0.0249)	0.0781** (0.0248)	0.0788** (0.0249)
Female # \$100,000 or more	0.111*** (0.0208)	0.110*** (0.0209)	0.107*** (0.0209)	0.103*** (0.0209)

*L. Age\*Marital Status*

15 to 24 # Married	0 (.)	0 (.)	0 (.)	0 (.)
15 to 24 # Living common-law	-0.109* (0.0506)	-0.119* (0.0506)	-0.111* (0.0505)	-0.116* (0.0505)
15 to 24 # Widowed	0 (.)	0 (.)	0 (.)	0 (.)
15 to 24 # Separated	0.0256 (0.122)	0.0569 (0.122)	0.0417 (0.123)	0.0700 (0.124)
15 to 24 # Divorced	-0.715*** (0.158)	-0.699*** (0.158)	-0.673*** (0.158)	-0.637*** (0.158)
15 to 24 # Single (Never married)	0.285*** (0.0350)	0.266*** (0.0350)	0.276*** (0.0351)	0.263*** (0.0352)
25 to 34 # Married	0 (.)	0 (.)	0 (.)	0 (.)
25 to 34 # Living common-law	0.0456 (0.0382)	0.0543 (0.0382)	0.0478 (0.0383)	0.0551 (0.0384)
25 to 34 # Widowed	-0.270 (0.359)	-0.286 (0.358)	-0.338 (0.357)	-0.392 (0.357)
25 to 34 # Separated	0.297*** (0.0523)	0.300*** (0.0524)	0.307*** (0.0523)	0.315*** (0.0523)
25 to 34 # Divorced	0.178*** (0.0531)	0.156** (0.0535)	0.182*** (0.0528)	0.171** (0.0528)
25 to 34 # Single (Never married)	0.204*** (0.0304)	0.200*** (0.0302)	0.198*** (0.0304)	0.192*** (0.0303)
35 to 44 # Married	0 (.)	0 (.)	0 (.)	0 (.)
35 to 44 # Living common-law	-0.134** (0.0406)	-0.123** (0.0408)	-0.132** (0.0406)	-0.126** (0.0408)
35 to 44 # Widowed	0.0335 (0.0898)	0.0204 (0.0902)	0.0202 (0.0900)	0.00355 (0.0905)
35 to 44 # Separated	-0.214*** (0.0453)	-0.212*** (0.0455)	-0.211*** (0.0455)	-0.208*** (0.0457)
35 to 44 # Divorced	-0.0535 (0.0384)	-0.0526 (0.0386)	-0.0558 (0.0384)	-0.0548 (0.0386)
35 to 44 # Single (Never married)	-0.0556 (0.0330)	-0.0481 (0.0330)	-0.0588 (0.0331)	-0.0559 (0.0331)
45 to 54 # Married	0 (.)	0 (.)	0 (.)	0 (.)
45 to 54 # Living common-law	0 (.)	0 (.)	0 (.)	0 (.)
45 to 54 # Widowed	0 (.)	0 (.)	0 (.)	0 (.)
45 to 54 # Separated	0 (.)	0 (.)	0 (.)	0 (.)

45 to 54 # Divorced	0 (.)	0 (.)	0 (.)	0 (.)
45 to 54 # Single (Never married)	0 (.)	0 (.)	0 (.)	0 (.)
55 to 64 # Married	0 (.)	0 (.)	0 (.)	0 (.)
55 to 64 # Living common-law	0.205*** (0.0488)	0.210*** (0.0490)	0.206*** (0.0487)	0.209*** (0.0487)
55 to 64 # Widowed	0.135 (0.0696)	0.141* (0.0695)	0.118 (0.0696)	0.112 (0.0693)
55 to 64 # Separated	0.221*** (0.0475)	0.239*** (0.0476)	0.223*** (0.0475)	0.237*** (0.0475)
55 to 64 # Divorced	-0.0872* (0.0360)	-0.0933* (0.0364)	-0.0893* (0.0360)	-0.0944** (0.0363)
55 to 64 # Single (Never married)	-0.0211 (0.0438)	-0.0246 (0.0439)	-0.0203 (0.0438)	-0.0230 (0.0438)
65 to 74 # Married	0 (.)	0 (.)	0 (.)	0 (.)
65 to 74 # Living common-law	-0.0725 (0.0684)	-0.0446 (0.0680)	-0.0706 (0.0684)	-0.0496 (0.0679)
65 to 74 # Widowed	0.0231 (0.0627)	0.0258 (0.0623)	0.00261 (0.0626)	-0.00745 (0.0622)
65 to 74 # Separated	0.132* (0.0666)	0.124 (0.0663)	0.127 (0.0672)	0.122 (0.0673)
65 to 74 # Divorced	-0.223*** (0.0471)	-0.234*** (0.0471)	-0.235*** (0.0471)	-0.248*** (0.0471)
65 to 74 # Single (Never married)	0.239*** (0.0491)	0.235*** (0.0492)	0.229*** (0.0489)	0.220*** (0.0488)
75 years and over # Married	0 (.)	0 (.)	0 (.)	0 (.)
75 years and over # Living common-law	1.143*** (0.146)	1.143*** (0.146)	1.148*** (0.148)	1.150*** (0.150)
75 years and over # Widowed	0.512*** (0.0730)	0.506*** (0.0729)	0.493*** (0.0729)	0.480*** (0.0729)
75 years and over # Separated	0.383*** (0.0984)	0.418*** (0.0976)	0.377*** (0.0981)	0.398*** (0.0975)
75 years and over # Divorced	0.841*** (0.0759)	0.819*** (0.0755)	0.823*** (0.0759)	0.801*** (0.0756)
75 years and over # Single (Never married)	1.148*** (0.0617)	1.146*** (0.0620)	1.157*** (0.0619)	1.160*** (0.0621)
<i>M. Age*household income</i>				
15 to 24 # No income or loss	1.185*** (0.178)	1.228*** (0.180)	1.197*** (0.179)	1.229*** (0.181)
15 to 24 # Less than \$5,000	0.708*** (0.164)	0.746*** (0.167)	0.732*** (0.162)	0.767*** (0.162)

15 to 24 # \$5,000 to \$9,999	0.153* (0.0688)	0.162* (0.0692)	0.175* (0.0689)	0.194** (0.0694)
15 to 24 # \$10,000 to \$14,999	0.986*** (0.0698)	0.962*** (0.0698)	1.016*** (0.0704)	1.012*** (0.0703)
15 to 24 # \$15,000 to \$19,999	-0.499*** (0.0627)	-0.483*** (0.0628)	-0.484*** (0.0626)	-0.467*** (0.0627)
15 to 24 # \$20,000 to \$29,999	-0.0254 (0.0484)	-0.0245 (0.0484)	-0.00839 (0.0485)	0.000210 (0.0483)
15 to 24 # \$30,000 to \$39,999	0.0219 (0.0476)	0.0141 (0.0474)	0.0341 (0.0477)	0.0346 (0.0477)
15 to 24 # \$40,000 to \$49,999	0.0329 (0.0426)	0.0299 (0.0429)	0.0433 (0.0427)	0.0472 (0.0430)
15 to 24 # \$50,000 to \$59,999	0.0183 (0.0484)	0.0193 (0.0485)	0.0216 (0.0483)	0.0234 (0.0483)
15 to 24 # \$60,000 to \$79,999	0 (.)	0 (.)	0 (.)	0 (.)
15 to 24 # \$80,000 to \$99,999	0.0546 (0.0521)	0.0540 (0.0525)	0.0560 (0.0522)	0.0567 (0.0525)
15 to 24 # \$100,000 or more	0.141*** (0.0362)	0.156*** (0.0362)	0.132*** (0.0362)	0.138*** (0.0362)
25 to 34 # No income or loss	1.899*** (0.161)	1.923*** (0.164)	1.909*** (0.161)	1.931*** (0.162)
25 to 34 # Less than \$5,000	0.838*** (0.162)	0.856*** (0.164)	0.827*** (0.159)	0.829*** (0.159)
25 to 34 # \$5,000 to \$9,999	0.466*** (0.0833)	0.435*** (0.0832)	0.490*** (0.0834)	0.480*** (0.0837)
25 to 34 # \$10,000 to \$14,999	0.676*** (0.0691)	0.647*** (0.0692)	0.679*** (0.0690)	0.661*** (0.0692)
25 to 34 # \$15,000 to \$19,999	-0.760*** (0.0614)	-0.765*** (0.0612)	-0.755*** (0.0613)	-0.755*** (0.0612)
25 to 34 # \$20,000 to \$29,999	0.0733 (0.0445)	0.0535 (0.0444)	0.0731 (0.0444)	0.0596 (0.0444)
25 to 34 # \$30,000 to \$39,999	-0.298*** (0.0455)	-0.308*** (0.0452)	-0.303*** (0.0455)	-0.312*** (0.0454)
25 to 34 # \$40,000 to \$49,999	0.0809* (0.0408)	0.0665 (0.0410)	0.0811* (0.0407)	0.0714 (0.0408)
25 to 34 # \$50,000 to \$59,999	0.0609 (0.0459)	0.0487 (0.0457)	0.0550 (0.0459)	0.0425 (0.0458)
25 to 34 # \$60,000 to \$79,999	0 (.)	0 (.)	0 (.)	0 (.)
25 to 34 # \$80,000 to \$99,999	-0.0372 (0.0366)	-0.0446 (0.0365)	-0.0386 (0.0366)	-0.0436 (0.0366)
25 to 34 # \$100,000 or more	-0.0375 (0.0317)	-0.0400 (0.0317)	-0.0394 (0.0317)	-0.0420 (0.0316)
35 to 44 # No income or loss	1.287*** (0.174)	1.329*** (0.174)	1.265*** (0.173)	1.282*** (0.173)

35 to 44 # Less than \$5,000	0.564** (0.181)	0.584** (0.184)	0.572** (0.179)	0.584** (0.180)
35 to 44 # \$5,000 to \$9,999	0.0173 (0.0861)	0.0155 (0.0865)	0.0265 (0.0861)	0.0282 (0.0863)
35 to 44 # \$10,000 to \$14,999	0.781*** (0.0770)	0.758*** (0.0768)	0.783*** (0.0769)	0.770*** (0.0768)
35 to 44 # \$15,000 to \$19,999	-0.106 (0.0726)	-0.121 (0.0729)	-0.106 (0.0724)	-0.118 (0.0725)
35 to 44 # \$20,000 to \$29,999	0.239*** (0.0431)	0.223*** (0.0430)	0.236*** (0.0430)	0.224*** (0.0430)
35 to 44 # \$30,000 to \$39,999	-0.264*** (0.0425)	-0.266*** (0.0422)	-0.269*** (0.0423)	-0.272*** (0.0421)
35 to 44 # \$40,000 to \$49,999	-0.295*** (0.0434)	-0.299*** (0.0435)	-0.298*** (0.0433)	-0.302*** (0.0435)
35 to 44 # \$50,000 to \$59,999	0.0549 (0.0410)	0.0645 (0.0411)	0.0504 (0.0410)	0.0534 (0.0410)
35 to 44 # \$60,000 to \$79,999	0 (.)	0 (.)	0 (.)	0 (.)
35 to 44 # \$80,000 to \$99,999	-0.0827* (0.0369)	-0.0976** (0.0367)	-0.0830* (0.0369)	-0.0924* (0.0368)
35 to 44 # \$100,000 or more	-0.00187 (0.0292)	-0.00709 (0.0290)	-0.00798 (0.0291)	-0.0148 (0.0289)
45 to 54 # No income or loss	0 (.)	0 (.)	0 (.)	0 (.)
45 to 54 # Less than \$5,000	0 (.)	0 (.)	0 (.)	0 (.)
45 to 54 # \$5,000 to \$9,999	0 (.)	0 (.)	0 (.)	0 (.)
45 to 54 # \$10,000 to \$14,999	0 (.)	0 (.)	0 (.)	0 (.)
45 to 54 # \$15,000 to \$19,999	0 (.)	0 (.)	0 (.)	0 (.)
45 to 54 # \$20,000 to \$29,999	0 (.)	0 (.)	0 (.)	0 (.)
45 to 54 # \$30,000 to \$39,999	0 (.)	0 (.)	0 (.)	0 (.)
45 to 54 # \$40,000 to \$49,999	0 (.)	0 (.)	0 (.)	0 (.)
45 to 54 # \$50,000 to \$59,999	0 (.)	0 (.)	0 (.)	0 (.)
45 to 54 # \$60,000 to \$79,999	0 (.)	0 (.)	0 (.)	0 (.)
45 to 54 # \$80,000 to \$99,999	0 (.)	0 (.)	0 (.)	0 (.)
45 to 54 # \$100,000 or more	0 (.)	0 (.)	0 (.)	0 (.)

55 to 64 # No income or loss	1.954*** (0.180)	2.035*** (0.182)	1.977*** (0.181)	2.043*** (0.183)
55 to 64 # Less than \$5,000	-0.543* (0.271)	-0.500 (0.273)	-0.531 (0.271)	-0.496 (0.272)
55 to 64 # \$5,000 to \$9,999	-0.135 (0.0750)	-0.135 (0.0754)	-0.142 (0.0751)	-0.148 (0.0756)
55 to 64 # \$10,000 to \$14,999	0.820*** (0.0775)	0.814*** (0.0773)	0.815*** (0.0773)	0.807*** (0.0771)
55 to 64 # \$15,000 to \$19,999	-0.604*** (0.0674)	-0.606*** (0.0671)	-0.611*** (0.0673)	-0.615*** (0.0671)
55 to 64 # \$20,000 to \$29,999	-0.159*** (0.0430)	-0.155*** (0.0431)	-0.153*** (0.0429)	-0.147*** (0.0429)
55 to 64 # \$30,000 to \$39,999	-0.173*** (0.0457)	-0.173*** (0.0456)	-0.173*** (0.0458)	-0.171*** (0.0458)
55 to 64 # \$40,000 to \$49,999	-0.186*** (0.0438)	-0.191*** (0.0436)	-0.181*** (0.0437)	-0.182*** (0.0436)
55 to 64 # \$50,000 to \$59,999	0.0529 (0.0461)	0.0455 (0.0462)	0.0480 (0.0460)	0.0409 (0.0459)
55 to 64 # \$60,000 to \$79,999	0 (.)	0 (.)	0 (.)	0 (.)
55 to 64 # \$80,000 to \$99,999	-0.285*** (0.0461)	-0.292*** (0.0461)	-0.286*** (0.0461)	-0.289*** (0.0462)
55 to 64 # \$100,000 or more	-0.0682* (0.0321)	-0.0791* (0.0320)	-0.0735* (0.0321)	-0.0834** (0.0319)
65 to 74 # No income or loss	1.669*** (0.143)	1.753*** (0.150)	1.709*** (0.144)	1.786*** (0.147)
65 to 74 # Less than \$5,000	2.075*** (0.147)	2.177*** (0.149)	2.076*** (0.143)	2.134*** (0.142)
65 to 74 # \$5,000 to \$9,999	0.155 (0.150)	0.223 (0.147)	0.201 (0.150)	0.264 (0.147)
65 to 74 # \$10,000 to \$14,999	1.040*** (0.0721)	1.084*** (0.0720)	1.059*** (0.0723)	1.096*** (0.0722)
65 to 74 # \$15,000 to \$19,999	-0.168* (0.0630)	-0.122 (0.0629)	-0.165** (0.0630)	-0.134* (0.0631)
65 to 74 # \$20,000 to \$29,999	0.0718 (0.0486)	0.126** (0.0483)	0.0817 (0.0488)	0.122* (0.0486)
65 to 74 # \$30,000 to \$39,999	0.0714 (0.0532)	0.118* (0.0531)	0.0721 (0.0535)	0.101 (0.0535)
65 to 74 # \$40,000 to \$49,999	0.157** (0.0517)	0.188*** (0.0518)	0.159** (0.0517)	0.179*** (0.0518)
65 to 74 # \$50,000 to \$59,999	0.204*** (0.0490)	0.245*** (0.0492)	0.206*** (0.0492)	0.233*** (0.0494)
65 to 74 # \$60,000 to \$79,999	0 (.)	0 (.)	0 (.)	0 (.)
65 to 74 # \$80,000 to \$99,999	0.218*** (0.0573)	0.264*** (0.0572)	0.215*** (0.0575)	0.241*** (0.0576)

65 to 74 # \$100,000 or more	0.163** (0.0492)	0.216*** (0.0485)	0.151** (0.0491)	0.178*** (0.0487)
75 years and over # No income or loss	-0.204 (0.153)	-0.0678 (0.154)	-0.163 (0.154)	-0.0549 (0.154)
75 years and over # Less than \$5,000	0.383* (0.181)	0.471* (0.185)	0.423* (0.181)	0.497** (0.183)
75 years and over # \$5,000 to \$9,999	-0.523*** (0.155)	-0.517** (0.157)	-0.482** (0.157)	-0.460** (0.160)
75 years and over # \$10,000 to \$14,999	0.619*** (0.0943)	0.631*** (0.0944)	0.648*** (0.0949)	0.667*** (0.0950)
75 years and over # \$15,000 to \$19,999	-1.233*** (0.0857)	-1.225** (0.0864)	-1.215** (0.0860)	-1.204** (0.0865)
75 years and over # \$20,000 to \$29,999	-0.119 (0.0746)	-0.111 (0.0749)	-0.105 (0.0749)	-0.0944 (0.0752)
75 years and over # \$30,000 to \$39,999	-0.414*** (0.0702)	-0.412*** (0.0707)	-0.401*** (0.0705)	-0.394*** (0.0708)
75 years and over # \$40,000 to \$49,999	-0.186* (0.0759)	-0.190* (0.0767)	-0.170* (0.0763)	-0.166* (0.0770)
75 years and over # \$50,000 to \$59,999	-0.310*** (0.0785)	-0.303*** (0.0780)	-0.298*** (0.0787)	-0.288*** (0.0786)
75 years and over # \$60,000 to \$79,999	0 (.)	0 (.)	0 (.)	0 (.)
75 years and over # \$80,000 to \$99,999	-0.170 (0.108)	-0.169 (0.108)	-0.159 (0.108)	-0.155 (0.108)
75 years and over # \$100,000 or more	0.386*** (0.0636)	0.391*** (0.0640)	0.386*** (0.0638)	0.387*** (0.0642)
Constant	8.009*** (0.0263)	7.994*** (0.0248)	8.109*** (0.0246)	8.165*** (0.0245)
Observations	18584	18584	18584	18584

Standard errors in parentheses

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

**Table 4: Coefficients from life satisfaction ordinary least squares regressions – 2013**

Explanatory Variables	(1)	(2)	(3)	(4)
<i>A. Prosocial Behavior</i>				
prosocial_0	0.0728 (0.0725)			
prosocial_1		0.156*** (0.0336)		
prosocial_2			-0.0232 (0.110)	
prosocial_3				-0.112** (0.0370)
<i>B. Health Score</i>				
Excellent	0.549*** (0.0440)	0.546*** (0.0440)	0.549*** (0.0436)	0.546*** (0.0437)
Very good	0 (.)	0 (.)	0 (.)	0 (.)
Good	-0.645*** (0.0435)	-0.640*** (0.0432)	-0.647*** (0.0433)	-0.644*** (0.0432)
Fair	-1.473*** (0.0802)	-1.463*** (0.0804)	-1.476*** (0.0801)	-1.471*** (0.0802)
Poor	-3.157*** (0.201)	-3.139*** (0.202)	-3.167*** (0.203)	-3.158*** (0.204)
<i>C. Education</i>				
Less than High School	0.238** (0.0764)	0.260*** (0.0763)	0.230** (0.0763)	0.234** (0.0759)
Graduated from High school	0.101 (0.0548)	0.126* (0.0548)	0.0965 (0.0546)	0.112* (0.0549)
Post-secondary diploma	0.106* (0.0447)	0.122** (0.0448)	0.105* (0.0447)	0.117** (0.0446)
University Diploma	0 (.)	0 (.)	0 (.)	0 (.)
<i>D. Marital Status</i>				
Married	0 (.)	0 (.)	0 (.)	0 (.)
Living common-law	-0.0937 (0.124)	-0.0769 (0.125)	-0.0956 (0.125)	-0.0862 (0.125)
Widowed	-0.689 (0.528)	-0.693 (0.522)	-0.699 (0.522)	-0.715 (0.518)
Separated	-0.908*** (0.252)	-0.919*** (0.250)	-0.916*** (0.252)	-0.930*** (0.250)
Divorced	-0.407* (0.183)	-0.419* (0.182)	-0.412* (0.183)	-0.427* (0.183)
Single, never married	-0.580*** (0.157)	-0.572*** (0.156)	-0.581*** (0.156)	-0.581*** (0.157)

<i>E. Age Group</i>				
15 to 24 years	0.282 (0.325)	0.279 (0.330)	0.274 (0.327)	0.276 (0.331)
25 to 34 years	0.165 (0.163)	0.157 (0.162)	0.162 (0.162)	0.156 (0.162)
35 to 44 years	-0.113 (0.185)	-0.123 (0.183)	-0.113 (0.185)	-0.120 (0.184)
45 to 54 years	0 (.)	0 (.)	0 (.)	0 (.)
55 to 64 years	0.132 (0.136)	0.122 (0.136)	0.134 (0.136)	0.130 (0.135)
65 to 74 years	0.422** (0.140)	0.404** (0.140)	0.421** (0.140)	0.410** (0.139)
75 years and over	0.468 (0.256)	0.454 (0.253)	0.470 (0.256)	0.465 (0.254)
<i>F. Household income</i>				
Less than \$20,000	-0.0480 (0.307)	-0.0534 (0.310)	-0.0582 (0.309)	-0.0689 (0.311)
\$20,000 to \$39,999	-0.356 (0.191)	-0.356 (0.189)	-0.364 (0.190)	-0.372 (0.189)
\$40,000 to \$59,999	-0.279 (0.218)	-0.289 (0.217)	-0.284 (0.218)	-0.298 (0.218)
\$60,000 to \$79,999	0 (.)	0 (.)	0 (.)	0 (.)
\$80,000 to \$99,999	0.0665 (0.159)	0.0479 (0.158)	0.0636 (0.159)	0.0517 (0.158)
\$100,000 to \$119,999	0.135 (0.151)	0.118 (0.151)	0.134 (0.150)	0.120 (0.150)
\$120,000 to \$139,999	0.0635 (0.191)	0.0592 (0.191)	0.0629 (0.191)	0.0595 (0.191)
\$140,000 or more	0.245 (0.140)	0.225 (0.139)	0.246 (0.139)	0.233 (0.139)
<i>G. Gender</i>				
Male	0 (.)	0 (.)	0 (.)	0 (.)
Female	0.230* (0.0892)	0.226* (0.0894)	0.229* (0.0892)	0.226* (0.0890)
<i>H. Province</i>				
Newfoundland and Labrador	0.214** (0.0772)	0.211** (0.0772)	0.216** (0.0773)	0.218** (0.0777)
Prince Edward Island	0.225** (0.0740)	0.215** (0.0736)	0.225** (0.0738)	0.219** (0.0736)
Nova Scotia	0.127 (0.0649)	0.120 (0.0644)	0.129* (0.0650)	0.123 (0.0648)
New Brunswick	0.210** (0.0706)	0.211** (0.0703)	0.210** (0.0706)	0.213** (0.0707)

Quebec	0.154** (0.0556)	0.169** (0.0561)	0.152** (0.0553)	0.163** (0.0557)
Ontario	0 (.)	0 (.)	0 (.)	0 (.)
Manitoba	0.121 (0.0617)	0.108 (0.0612)	0.122* (0.0617)	0.113 (0.0617)
Saskatchewan	0.141* (0.0647)	0.123 (0.0640)	0.141* (0.0647)	0.130* (0.0642)
Alberta	0.00407 (0.0576)	-0.00211 (0.0574)	0.00560 (0.0577)	0.00198 (0.0579)
British Columbia	-0.106 (0.0582)	-0.113 (0.0584)	-0.108 (0.0588)	-0.118* (0.0581)
<i>I. Household Size</i>				
1	-0.0201 (0.0728)	-0.0215 (0.0725)	-0.0208 (0.0729)	-0.0200 (0.0726)
2	0 (.)	0 (.)	0 (.)	0 (.)
3	-0.128* (0.0551)	-0.127* (0.0550)	-0.131* (0.0549)	-0.130* (0.0548)
4	-0.0837 (0.0604)	-0.0885 (0.0605)	-0.0809 (0.0602)	-0.0837 (0.0605)
5	-0.0129 (0.0735)	-0.0206 (0.0736)	-0.0101 (0.0732)	-0.0151 (0.0733)
6 or more	0.0294 (0.131)	0.0140 (0.132)	0.0309 (0.131)	0.0236 (0.131)
<i>J. Immigrant Status</i>				
Born in Canada	0 (.)	0 (.)	0 (.)	0 (.)
Born outside Canada	-0.0941 (0.0531)	-0.0778 (0.0525)	-0.0958 (0.0524)	-0.0869 (0.0526)
<i>K. Gender*Household Income</i>				
Male # Less than \$20,000	0 (.)	0 (.)	0 (.)	0 (.)
Male # \$20,000 to \$39,999	0 (.)	0 (.)	0 (.)	0 (.)
Male # \$40,000 to \$59,999	0 (.)	0 (.)	0 (.)	0 (.)
Male # \$60,000 to \$79,999	0 (.)	0 (.)	0 (.)	0 (.)
Male # \$80,000 to \$99,999	0 (.)	0 (.)	0 (.)	0 (.)
Male # \$100,000 to \$119,999	0 (.)	0 (.)	0 (.)	0 (.)
Male # \$120,000 to \$139,999	0 (.)	0 (.)	0 (.)	0 (.)

Male # \$140,000 or more	0 (.)	0 (.)	0 (.)	0 (.)
Female # Less than \$20,000	-0.288 (0.214)	-0.279 (0.216)	-0.287 (0.215)	-0.280 (0.216)
Female # \$20,000 to \$39,999	0.0319 (0.150)	0.0298 (0.150)	0.0364 (0.150)	0.0416 (0.150)
Female # \$40,000 to \$59,999	-0.124 (0.147)	-0.125 (0.147)	-0.122 (0.147)	-0.120 (0.147)
Female # \$60,000 to \$79,999	0 (.)	0 (.)	0 (.)	0 (.)
Female # \$80,000 to \$99,999	0.0499 (0.131)	0.0526 (0.131)	0.0538 (0.131)	0.0583 (0.131)
Female # \$100,000 to \$119,999	-0.402** (0.134)	-0.400** (0.134)	-0.400** (0.134)	-0.392** (0.133)
Female # \$120,000 to \$139,999	-0.357* (0.139)	-0.361** (0.138)	-0.353* (0.139)	-0.352* (0.139)
Female # \$140,000 or more	-0.327** (0.113)	-0.327** (0.112)	-0.324** (0.113)	-0.321** (0.112)
<i>L. Age*Marital Status</i>				
15 to 24 years # Married	0 (.)	0 (.)	0 (.)	0 (.)
15 to 24 years # Living common-law	0.311 (0.358)	0.289 (0.364)	0.301 (0.359)	0.273 (0.362)
15 to 24 years # Widowed	0 (.)	0 (.)	0 (.)	0 (.)
15 to 24 years # Separated	0 (.)	0 (.)	0 (.)	0 (.)
15 to 24 years # Divorced	0.0541 (0.404)	0.115 (0.409)	0.0540 (0.406)	0.111 (0.410)
15 to 24 years # Single, never married	-0.0840 (0.335)	-0.116 (0.340)	-0.0895 (0.338)	-0.130 (0.340)
25 to 34 years # Married	0 (.)	0 (.)	0 (.)	0 (.)
25 to 34 years # Living common-law	-0.321 (0.188)	-0.326 (0.188)	-0.318 (0.186)	-0.325 (0.189)
25 to 34 years # Widowed	0.222 (0.622)	0.154 (0.616)	0.229 (0.619)	0.189 (0.611)
25 to 34 years # Separated	-0.287 (0.314)	-0.259 (0.312)	-0.280 (0.313)	-0.258 (0.310)
25 to 34 years # Divorced	-0.125 (0.342)	-0.0710 (0.346)	-0.112 (0.342)	-0.0627 (0.348)
25 to 34 years # Single, never married	-0.266 (0.182)	-0.264 (0.181)	-0.268 (0.182)	-0.272 (0.181)
35 to 44 years # Married	0 (.)	0 (.)	0 (.)	0 (.)

35 to 44 years # Living common-law	-0.263 (0.188)	-0.275 (0.188)	-0.260 (0.189)	-0.268 (0.190)
35 to 44 years # Widowed	-0.107 (0.800)	-0.0681 (0.807)	-0.0889 (0.796)	-0.0492 (0.802)
35 to 44 years # Separated	-0.373 (0.540)	-0.342 (0.536)	-0.357 (0.541)	-0.334 (0.536)
35 to 44 years # Divorced	-0.0650 (0.282)	-0.0673 (0.281)	-0.0586 (0.282)	-0.0566 (0.283)
35 to 44 years # Single, never married	0.0998 (0.232)	0.104 (0.232)	0.0925 (0.233)	0.0935 (0.234)
45 to 54 years # Married	0 (.)	0 (.)	0 (.)	0 (.)
45 to 54 years # Living common-law	0 (.)	0 (.)	0 (.)	0 (.)
45 to 54 years # Widowed	0 (.)	0 (.)	0 (.)	0 (.)
45 to 54 years # Separated	0 (.)	0 (.)	0 (.)	0 (.)
45 to 54 years # Divorced	0 (.)	0 (.)	0 (.)	0 (.)
45 to 54 years # Single, never married	0 (.)	0 (.)	0 (.)	0 (.)
55 to 64 years # Married	0 (.)	0 (.)	0 (.)	0 (.)
55 to 64 years # Living common-law	-0.0428 (0.187)	-0.0493 (0.188)	-0.0480 (0.188)	-0.0564 (0.188)
55 to 64 years # Widowed	0.343 (0.569)	0.349 (0.562)	0.357 (0.564)	0.377 (0.559)
55 to 64 years # Separated	0.476 (0.310)	0.499 (0.308)	0.468 (0.311)	0.472 (0.308)
55 to 64 years # Divorced	0.180 (0.220)	0.196 (0.219)	0.183 (0.221)	0.194 (0.220)
55 to 64 years # Single, never married	0.216 (0.228)	0.198 (0.228)	0.209 (0.228)	0.194 (0.229)
65 to 74 years # Married	0 (.)	0 (.)	0 (.)	0 (.)
65 to 74 years # Living common-law	0.132 (0.220)	0.110 (0.221)	0.128 (0.220)	0.110 (0.220)
65 to 74 years # Widowed	0.488 (0.547)	0.499 (0.540)	0.498 (0.541)	0.519 (0.536)
65 to 74 years # Separated	0.829* (0.373)	0.847* (0.370)	0.837* (0.374)	0.856* (0.370)
65 to 74 years # Divorced	0.0917 (0.233)	0.108 (0.232)	0.0955 (0.234)	0.113 (0.234)
65 to 74 years # Single, never married	0.211 (0.249)	0.207 (0.247)	0.213 (0.248)	0.213 (0.246)

75 years and over #	0	0	0	0
Married	(.)	(.)	(.)	(.)
75 years and over #	0.556	0.514	0.534	0.488
Living common-law	(0.476)	(0.478)	(0.470)	(0.472)
75 years and over #	0.140	0.150	0.151	0.172
Widowed	(0.539)	(0.531)	(0.533)	(0.528)
75 years and over #	0.471	0.492	0.476	0.498
Separated	(0.434)	(0.431)	(0.435)	(0.433)
75 years and over #	0.0180	0.0401	0.0252	0.0427
Divorced	(0.260)	(0.259)	(0.260)	(0.260)
75 years and over #	0.305	0.278	0.309	0.298
Single, never married	(0.290)	(0.287)	(0.288)	(0.285)
<i>M. Age*Household</i>				
<i>Income</i>				
15 to 24 years # Less than \$20,000	-0.347 (0.426)	-0.347 (0.425)	-0.329 (0.422)	-0.324 (0.424)
15 to 24 years # \$20,000 to \$39,999	-0.0492 (0.325)	-0.0476 (0.323)	-0.0298 (0.324)	-0.0231 (0.321)
15 to 24 years # \$40,000 to \$59,999	0.0592 (0.336)	0.0925 (0.333)	0.0707 (0.336)	0.0941 (0.332)
15 to 24 years # \$60,000 to \$79,999	0 (.)	0 (.)	0 (.)	0 (.)
15 to 24 years # \$80,000 to \$99,999	-0.0523 (0.270)	-0.0267 (0.270)	-0.0438 (0.270)	-0.0331 (0.270)
15 to 24 years # \$100,000 to \$119,999	0.137 (0.262)	0.169 (0.263)	0.149 (0.262)	0.171 (0.261)
15 to 24 years # \$120,000 to \$139,999	0.0563 (0.277)	0.0841 (0.276)	0.0604 (0.279)	0.0730 (0.277)
15 to 24 years # \$140,000 or more	0.0111 (0.225)	0.0399 (0.224)	0.0220 (0.225)	0.0423 (0.224)
25 to 34 years # Less than \$20,000	0.101 (0.359)	0.100 (0.360)	0.105 (0.359)	0.102 (0.361)
25 to 34 years # \$20,000 to \$39,999	0.0175 (0.319)	0.0185 (0.319)	0.0208 (0.317)	0.0176 (0.321)
25 to 34 years # \$40,000 to \$59,999	0.443 (0.227)	0.451* (0.227)	0.446 (0.227)	0.455* (0.227)
25 to 34 years # \$60,000 to \$79,999	0 (.)	0 (.)	0 (.)	0 (.)
25 to 34 years # \$80,000 to \$99,999	-0.000519 (0.205)	0.0138 (0.204)	-0.00427 (0.205)	-0.00261 (0.204)
25 to 34 years # \$100,000 to \$119,999	0.263 (0.192)	0.284 (0.191)	0.262 (0.191)	0.279 (0.191)
25 to 34 years # \$120,000 to \$139,999	0.109 (0.220)	0.128 (0.220)	0.108 (0.220)	0.123 (0.220)
25 to 34 years # \$140,000 or more	0.132 (0.190)	0.143 (0.190)	0.132 (0.190)	0.145 (0.190)

35 to 44 years # Less than \$20,000	0.00117 (0.474)	0.00437 (0.475)	0.00109 (0.475)	-0.00274 (0.478)
35 to 44 years # \$20,000 to \$39,999	0.221 (0.289)	0.223 (0.287)	0.226 (0.289)	0.228 (0.289)
35 to 44 years # \$40,000 to \$59,999	0.319 (0.276)	0.331 (0.274)	0.316 (0.277)	0.326 (0.277)
35 to 44 years # \$60,000 to \$79,999	0 (.)	0 (.)	0 (.)	0 (.)
35 to 44 years # \$80,000 to \$99,999	-0.0420 (0.227)	-0.0188 (0.226)	-0.0422 (0.227)	-0.0264 (0.225)
35 to 44 years # \$100,000 to \$119,999	0.142 (0.238)	0.145 (0.237)	0.139 (0.238)	0.142 (0.238)
35 to 44 years # \$120,000 to \$139,999	0.419 (0.236)	0.413 (0.235)	0.417 (0.236)	0.413 (0.236)
35 to 44 years # \$140,000 or more	0.124 (0.215)	0.135 (0.214)	0.120 (0.216)	0.124 (0.215)
45 to 54 years # Less than \$20,000	0 (.)	0 (.)	0 (.)	0 (.)
45 to 54 years # \$20,000 to \$39,999	0 (.)	0 (.)	0 (.)	0 (.)
45 to 54 years # \$40,000 to \$59,999	0 (.)	0 (.)	0 (.)	0 (.)
45 to 54 years # \$60,000 to \$79,999	0 (.)	0 (.)	0 (.)	0 (.)
45 to 54 years # \$80,000 to \$99,999	0 (.)	0 (.)	0 (.)	0 (.)
45 to 54 years # \$100,000 to \$119,999	0 (.)	0 (.)	0 (.)	0 (.)
45 to 54 years # \$120,000 to \$139,999	0 (.)	0 (.)	0 (.)	0 (.)
45 to 54 years # \$140,000 or more	0 (.)	0 (.)	0 (.)	0 (.)
55 to 64 years # Less than \$20,000	-0.232 (0.348)	-0.230 (0.349)	-0.232 (0.349)	-0.236 (0.349)
55 to 64 years # \$20,000 to \$39,999	-0.121 (0.214)	-0.116 (0.213)	-0.117 (0.214)	-0.116 (0.214)
55 to 64 years # \$40,000 to \$59,999	0.253 (0.223)	0.264 (0.223)	0.255 (0.222)	0.266 (0.223)
55 to 64 years # \$60,000 to \$79,999	0 (.)	0 (.)	0 (.)	0 (.)
55 to 64 years # \$80,000 to \$99,999	-0.168 (0.186)	-0.149 (0.185)	-0.168 (0.186)	-0.156 (0.186)
55 to 64 years # \$100,000 to \$119,999	0.00513 (0.191)	0.00747 (0.191)	0.00484 (0.190)	0.00638 (0.190)
55 to 64 years # \$120,000 to \$139,999	0.144 (0.222)	0.146 (0.223)	0.143 (0.222)	0.147 (0.223)

55 to 64 years #	-0.0825	-0.0625	-0.0815	-0.0668
\$140,000 or more	(0.169)	(0.169)	(0.169)	(0.169)
65 to 74 years # Less	-0.123	-0.104	-0.114	-0.0998
than \$20,000	(0.379)	(0.381)	(0.381)	(0.381)
65 to 74 years # \$20,000	-0.0260	-0.0160	-0.0235	-0.0174
to \$39,999	(0.223)	(0.223)	(0.223)	(0.223)
65 to 74 years # \$40,000	-0.135	-0.113	-0.128	-0.105
to \$59,999	(0.231)	(0.231)	(0.231)	(0.231)
65 to 74 years # \$60,000	0	0	0	0
to \$79,999	(.)	(.)	(.)	(.)
65 to 74 years # \$80,000	-0.168	-0.149	-0.163	-0.149
to \$99,999	(0.202)	(0.201)	(0.202)	(0.200)
65 to 74 years #	0.0892	0.104	0.0929	0.105
\$100,000 to \$119,999	(0.226)	(0.226)	(0.225)	(0.225)
65 to 74 years #	0.136	0.138	0.130	0.129
\$120,000 to \$139,999	(0.247)	(0.248)	(0.246)	(0.246)
65 to 74 years #	0.0155	0.0427	0.0177	0.0389
\$140,000 or more	(0.187)	(0.187)	(0.186)	(0.186)
75 years and over # Less	0.304	0.312	0.308	0.304
than \$20,000	(0.408)	(0.407)	(0.407)	(0.408)
75 years and over #	0.179	0.198	0.180	0.189
\$20,000 to \$39,999	(0.301)	(0.298)	(0.300)	(0.298)
75 years and over #	-0.0155	0.0163	-0.0108	0.0185
\$40,000 to \$59,999	(0.328)	(0.326)	(0.327)	(0.327)
75 years and over #	0	0	0	0
\$60,000 to \$79,999	(.)	(.)	(.)	(.)
75 years and over #	-0.190	-0.166	-0.191	-0.176
\$80,000 to \$99,999	(0.334)	(0.332)	(0.334)	(0.332)
75 years and over #	-0.174	-0.174	-0.170	-0.168
\$100,000 to \$119,999	(0.439)	(0.437)	(0.438)	(0.435)
75 years and over #	0.334	0.378	0.331	0.361
\$120,000 to \$139,999	(0.398)	(0.394)	(0.396)	(0.391)
75 years and over #	0.263	0.291	0.253	0.264
\$140,000 or more	(0.386)	(0.383)	(0.385)	(0.381)
Constant	8.175***	8.169***	8.247***	8.297***
	(0.148)	(0.129)	(0.129)	(0.127)
Observations	13583	13583	13583	13583

Standard errors in parentheses

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

## **Appendix B – Formal volunteering**

Direct quotation from the 2013 General Social Survey codebook (p.18-p.24).

In the past 12 months, did you do any of the following activities without pay on behalf of a group or an organization? This includes any unpaid help you provided to schools, religious organizations, sports or community associations. Did you (do any):

1. canvassing?
2. fundraising?
3. sit as a member of a committee or board?
4. teaching, educating or mentoring?
5. organize, supervise or coordinate activities or events?
6. office work, bookkeeping, administrative duties, or library work
7. coach, referee or officiate?
8. counsel or provide advice?
9. provide health care or support including companionship?
10. collect, serve or deliver food or other goods?
11. work associated with the maintenance, repair or building of facilities or grounds?
12. volunteer driving?
13. provide help through first aid, fire-fighting, or search and rescue?
14. engage in activities aimed at conservation or protection of the environment or wildlife?
15. In the past 12 months, did you do any other unpaid activities on behalf of a group or an organization?

## Appendix C – Financial Giver

Direct quotation from the 2013 General Social Survey codebook (p.89-p.93).

In the past 12 months, did you make a charitable donation:

1. by responding to a request through the mail?
2. by responding to a telephone request? Do not include any donations already mentioned.
3. by responding to a television or radio request, or a telethon? (Do not include any donations already mentioned.)
4. online? Do not include any donations you have already mentioned.
5. by approaching a charitable or non-profit organization on your own? (Do not include any donations already mentioned.)
6. by paying to attend a charity event? (Do not include any donations already mentioned.)
7. by donating in the name of someone who has passed away, or 'in memoriam'? (Do not include any donations already mentioned.)
8. when asked by someone at work? (Do not include any donations already mentioned.)
9. when asked by someone doing door-to-door canvassing? (Do not include any donations already mentioned.)
10. when asked by someone canvassing for a charitable organization at a shopping centre or on the street? (Do not include any donations already mentioned.)
11. through a collection at a church, synagogue, mosque or other place of worship? (Do not include any donations already mentioned.)
12. by sponsoring someone in an event such as a walk-a-thon? (Do not include any donations already mentioned.)
13. In the past 12 months, were there any other methods in which you gave money to a charitable or non-profit organization? Do not include any donations already mentioned.

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