



Trust and wellbeing

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Abstract: This paper presents new evidence linking trust and subjective wellbeing, based primarily on data from the Gallup World Poll and cycle 17 of the Canadian General Social Survey (GSS17). Because several of the general explanations for subjective wellbeing examined here show large and significant linkages to both household income and various measures of trust, it is possible to estimate income-equivalent compensating differentials for different types of trust. Measures of trust studied include general social trust, trust in management, trust in co-workers, trust in neighbours, and trust in police. In addition, some Canadian surveys and the Gallup World Poll ask respondents to estimate the chances that a lost wallet would be returned to them if found by different individuals, including neighbours, police and strangers.

Our results reveal strong linkages between several trust measures and subjective well-being, as well as strong linkages between social trust and two major global causes of death—suicides and traffic fatalities. This suggests the value of learning more about how trust can be built and maintained, or repaired where it has been damaged. We therefore use data from the Canadian GSS17 to analyze personal and neighbourhood characteristics, including education, migration history, and mobility, that help explain differences in trust levels among individuals. Finally, by combining data from new dropped-wallet field experiments with survey answers about the expected return of a dropped wallet, we show that wallets are far more likely to be returned, even by strangers in large cities, than people expect.

Keywords: wellbeing, Gallup World Poll, field experiment, social capital, life satisfaction, subjective well-being, social trust, workplace trust, neighbourhood trust

1. Introduction

Humans are social beings, and trust is widely seen as an essential element in any social setting. Without trust, people are loath to reach out, and to make the social connections that underpin any collaborative action. For trust to be durable, it needs to be justified by trustworthy behaviours of those being trusted. Many recent studies of the causes and consequences of trust have been linked to the parallel study of social capital, since trust has been seen sometimes as a proxy measure of social capital, or alternatively as a consequence or correlate of high levels of social capital. Like social capital, trust can be narrow or encompassing, be identified by type and purpose, be affected by geographic, social and cultural distance, and take more time to build than to destroy.

Many studies of the possible benefits of trust have focussed on economic growth (Algan and Cahuc 2010, Berggren *et al.* 2008, Beugelsdijk 2006, Beugelsdijk *et al.* 2004, Dincer and Uslaner 2010, Fukayama 1995, Helliwell and Putnam 1995, Helliwell 1996, Knack and Keefer 1997, Knack 2001, Zak and Knack 2001) and institutional development (Aghion *et al.* 2010, Bergh and Bjørnskov 2009, Bjørnskov 2010a, Knack 2002), with some attention paid also to



health (Kawachi *et al.* 1997, Kawachi *et al.* 2007, Yip *et al.* 2007). In this paper we take a broader focus by looking at the linkages between trust and subjective wellbeing. We use various measures of subjective wellbeing as though they are measures of utility, and then search for the consequences of trust as they might flow indirectly through economic success and physical health, as well as more directly to individual evaluations of the quality of life.

The economic and social determinants of subjective wellbeing have received much attention in recent studies (Alesina *et al.* 2004, Blanchflower 2009, Deaton 2008, Easterlin 2001, Ferrer-i-Carbonell 2005, Helliwell and Putnam 2004, Helliwell *et al.* 2010). However, the links between trust and subjective wellbeing are relatively unexplored. Bjørnskov (2003) shows that there is significant correlation between social trust and life satisfaction in country-level regressions, and similarly, Bjørnskov (2008) finds significant links in US state-level regressions. However, Ram (2010) finds only a fragile role for social trust in country-level regressions for life satisfaction. Individual-level regressions all tend to support the existence of strong links between trust and measures of subjective wellbeing. Chang (2009) shows that the level of social trust is positively associated with happiness using data from a survey in Taiwan. Yip *et al.* (2007) also find evidence of strong linkages between trust and life satisfaction using data collected in rural China. Helliwell (2003), Helliwell and Putnam (2004) and Helliwell *et al.* (2009) give similar results using large samples of data from the World Values Surveys (WVS), the US Benchmark Survey (USBS) and Canadian Equality, Security and Community survey (ESC).

This paper aims to re-examine the links between various measures of trust and subjective wellbeing using both multi-country and Canadian survey data. We first present our new results for the wellbeing consequences of dropped-wallet responses from the Gallup World Poll (GWP) 2006, followed by life satisfaction equations based on the Canadian General Social Survey (GSS) cycle 17, which has a number of different trust measures.¹ Our results show that several different dimensions and types of trust provide strong supports for wellbeing above and beyond their more frequently studied contributions to economic efficiency. These new results are then compared, in summary form, with some previous estimates of the linkages between trust and wellbeing. We also consider evidence about the influence of trust on other wellbeing outcomes, such as suicide and traffic fatalities.

Although causal links between trust and subjective wellbeing are hard to establish conclusively in our regressions, the stability of trust across generations supports our conjecture that the main causal effect runs from trust to subjective wellbeing. Recent empirical studies on social trust show that trust can be transmitted across many generations and therefore is fairly stable over time. Algan and Cahuc (2010) and Bjørnskov (2006) show that national-level social trust is remarkably stable over time. Durante (2009) argues that historical climate conditions (between the 16th and the 18th century) in Europe largely shaped contemporary trust. Nunn and Wantchekon (2009) argue that the low trust in contemporary Africa can be traced back to the slave trade. Uslaner (2002) shows that trust does not vary much over time in the United States. Uslaner (2008) shows that the social trust of descendants of US immigrants is significantly associated with social trust levels in the country of origin, while Soroka *et al.* (2006), Milroy (2009) and this paper show the same thing for immigrants to Canada.

We then show that the quality of social connections matters a lot to the maintenance of trust using the rich social context details in the Canadian GSS17 survey. In ways that validate the trust measures and theories of trust formation, general factors matter most for the

¹ Summary statistics and detailed descriptions of the variables for both the Gallup World Poll 2006 and the Canadian General Social Survey cycle 17 are included in the Appendix.

determination of social trust, while neighbourhood characteristics matter most for neighbourhood trust. For example, the effects of individual-level and census-tract-level measures of education are strongly supportive of social trust, as are the respondent's memberships in social organizations, and the level of social trust in the country where the respondent was born.

The paper is organized as follows. Section 2 discusses the measurement of trust and subjective wellbeing. Section 3 presents the empirical estimation of the effects of various trust measures on subjective wellbeing. Section 4 gives some evidence about the influence of trust on other wellbeing outcomes such as suicide and traffic fatalities. Section 5 examines the factors supporting different types of trust to validate the trust measure. Section 6 reveals large and widespread divergences between perceived and actual trustworthiness, and assesses the likely consequences for subjective wellbeing. Section 7 concludes the paper.

2. Measuring trust and subjective wellbeing

The measures of trust we consider include individual assessments about whether other people can generally be trusted (the 'social trust' question), individual assessments of the trustworthiness of their neighbours, co-workers and managers, and responses to very specific questions about whether a lost wallet is judged likely to be returned if found by a variety of different individuals, including neighbours, police and strangers.

The survey method has been commonly used to measure trust. Although sometimes doubted because of their subjective nature, these assessments have been shown to be consistent both with laboratory (Naef and Schupp 2009) and field (Knack 2001) experiments. Morrone *et al.* (2009) argue that there might be some preference for the wallet questions, since their meaning is very explicit, thereby reducing the possibilities for disagreement about what the respondents are evaluating².

The introduction of wallet questions into surveys was spurred by experiments conducted by *Reader's Digest Europe*, and reported in that magazine in April 1996 (and subsequently discussed in the *Economist*, June 22, 1996). These experiments involved dropping 10 cash-bearing wallets in each of 20 cities in 14 western European countries, and in each of a dozen US cities. The data on the frequency of wallet returns were later used by Knack (2001) to provide some behavioural validation for the use of answers to the frequently-asked question of interpersonal trust: "In general, do you think that most people can be trusted, or, alternatively, that you can't be too careful in dealing with people". Knack (2001) found that at the national level the actual frequency of return of the experimentally dropped wallets was correlated at the 0.65 ($p < 0.01$) level with national average responses to the general social or interpersonal trust question, as measured in the World Values Survey³. While this provides strong validation for the meaningfulness of international differences in survey responses to social trust questions, it also suggests a way of adding more specific trust questions to surveys.

Hence when the Canadian ESC survey was being designed in 2000, we included not just the standard questions on interpersonal and institutional trust, but also some specific hypothetical questions about the likelihood of the respondent's lost wallet (containing identification and

² Uslaner (2002, 2005) and Morrone *et al.* (2009) provide helpful surveys of different ways of measuring trust, and of various debates about the meaning of such measures.

³ Knack notes that this high correlation "cannot be explained away by attributing high-trust attitudes and wallet-returning behaviour to higher per-capita incomes: the partial correlation between trust and returned wallets, controlling for per capita income, is even higher than the simple correlation" (Knack 2001, p. 184).

\$200) being returned if found by, alternatively, a neighbour, a clerk in a nearby store, a police officer, or a stranger. Some of the same wallet return questions were subsequently also included in the larger Statistics Canada GSS17 in 2003 and in more than 80 country surveys of the Gallup World Poll in 2006. Soroka *et al.* (2006) compare the wallet and general trust data from the ESC survey, and we shall report later in this paper some similar comparisons based on the GSS17 data. We shall also combine the GSS17 wallet answers with some recent dropped-wallet experiments in Toronto to provide a first-ever level comparison between expected and actual trust-worthiness. For the Gallup World Poll, it is not possible to compare the wallet and general trust answers from the same respondents, as the wallet questions were asked only in 2006, and the general trust questions were first asked in 2009.

Where direct comparisons are possible, they generally serve to validate the use of both specific and general trust measures. The measures that relate to specific geographic areas tend to respond to the characteristics of that neighbourhood. The high correlation between actual wallet returns and the answers to the social trust questions when averaged on a national basis (Knack 2001) suggests that answers to general interpersonal trust questions are based on experience within the respondent's own nation. We shall show later that when people migrate from one country to another there is a carry-over of social trust answers from country of emigration to country of immigration, with even some evidence of carry-forward into the next generation. But this footprint is much less where the questions are more closely related to specific events in the country of immigration, such as whether wallets would be returned if found by neighbours or police.

Table 1-a and 1-b (p. 62) present the correlation matrix of various trust measures in GWP 2006 and Canadian GSS17 respectively. All the trust measures are highly correlated in both surveys. We shall subsequently see that each of the separate measures is most amenable to explanation by closely related features of the social context—e.g. neighbourhood trust explained by neighbourhood characteristics—giving us that much more confidence in the validity of the trust measures individually and as a group.

Our main measures of wellbeing are overall life satisfaction in Canadian GSS17 and the Cantril Ladder in the Gallup World Poll. The life satisfaction question is "Please rate your feelings about certain areas of your life, 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?" The Cantril Ladder question is "Please imagine a ladder with steps numbered from zero at the bottom to ten at the top. Suppose we say that the top of the ladder represents the best possible life for you and the bottom of the ladder represents the worst possible. If the top step is 10 and the bottom step is 0, on which step of the ladder do you feel you personally stand at the present time?" This is necessary because the Gallup World Poll does not yet have a sample of country surveys asking both about life satisfaction and measure of trust.

Bjørnskov (2010b) and Helliwell (2008) found systematic national-level differences between early waves of the Cantril Ladder used in GWP and life satisfaction in WVS. This led to the inclusion of a satisfaction with life question into the GWP to permit these differences to be better understood. Using life satisfaction and Cantril Ladder answers from the same respondents, Helliwell *et al.* (2010) show that while life satisfaction responses are higher and have a differently-shaped distribution than those for the Cantril Ladder, the two alternative measures nonetheless provide consistent evaluations of the relative importance of economic and social factors. This supports comparisons of results across surveys, especially results generated from individual-level regressions.

3. Trust makes lives better

In this section we present some new evidence about the effects of trust on wellbeing⁴. We start with results based on data from the Gallup World Poll, explaining the links between subjective wellbeing and the expected frequency of wallet returns if found, alternatively, by neighbours, by police, and by strangers. We then consider evidence from the GSS17, which asked the general interpersonal and neighbourhood trust questions, a question about the level of trust among workplace colleagues, and also about the likelihood of wallets being returned if found by police, neighbours, strangers, and by a clerk in a nearby store. This range of trust assessments will help us to see more clearly how the specific and general questions are related to each other. Finally, we shall relate this new evidence to earlier results about the wellbeing effects of different sorts of specific and general trust.

The 2006 wave of the Gallup World Poll included wallet trust questions in 86 national surveys. For 79 countries we have wallet data and full slates of the other data used in estimating the general life evaluation model in Helliwell *et al.* (2010). There are interesting international differences in the patterns of answers to the wallet return questions. In the OECD countries, the expectation of wallet return if found by police is even higher than if found by neighbours, 91% vs. 89%. In the rest of the global sample, the situation is reversed, with 51% expecting wallets to be returned by police, compared to 61% by neighbours. As already suggested by these figures, trust or distrust in police is more shared among citizens of the same country than is trust in neighbours or trust in strangers. Thus, as we show in Figure 1 (p. 73), the international share of the variance of the global sample of individual answers to the police question is almost twice as high as for the likelihood of lost wallets being returned by neighbours, and is more than twice as high as for strangers.

It should be noted at the outset that return of a lost wallet requires more than just honesty or absence of corruption, and much more than simply the assurance that people will do what they say they will do. It requires the wallet finder to reach out and perform a deliberate act of other-regarding kindness, one that can be foreseen to take time and trouble in order to reduce the loss of another. There is little chance of any personal gain for the finder, beyond the possible gratitude of the wallet owner and the pleasure received from being kind to others. Yet in both Copenhagen and Oslo, all ten of the *Reader's Digest* dropped wallets were returned to their owners, and the average across all the western European cities was about two-thirds. In the Gallup data, which are based on nationally representative (rather than purely urban, as in the *Reader's Digest* experiments) samples in mainly non-OECD countries, the numbers of respondents expecting return of their wallets if found by police, neighbours and strangers are 56%, 64% and 17%, respectively⁵.

Each of the four panels of Table 2 (pp. 63-66) contains six alternative equations for subjective wellbeing. The first panel refers to neighbours, the second to police, the third to strangers, and the fourth to each individual's average answer to the three different wallet questions. Moving across the columns in each part of Table 2, equation (1) is the basic equation,

⁴ The range of relevant measures of subjective well-being, their validity, and their policy relevance are discussed in detail in Diener *et al.* (2009).

⁵ In the whole sample of more than 79,000 responses to the Gallup wallet question, the expected average rate of return was about 0.08 lower for respondents living in cities rather than rural areas, with town dwellers in between. The Gallup sample of countries asked the wallet question unfortunately has only 9 OECD countries, with only four countries appearing in both the Gallup data and the *Reader's Digest* experiments. The simple correlation between the two measures of wallet return (Gallup expected and *Reader's Digest* actual) is as high as that found by Knack for the WVS trust data, but the sample is too small for the correlation to be statistically significant.

including the individual-level determinants also used in Helliwell *et al.* (2010) with the addition of answers to the question relating to whether or not a wallet was thought likely to be returned if found by a neighbour. The coefficient on the wallet-neighbour variables is 0.179, implying a 0.179 higher individual life evaluation, on a 0 to 10 scale, if a lost wallet is thought likely to be returned if found by a neighbour. Equation (2) includes the same wallet question, but adds the individual's assessment of the generality of corruption in business and government in his or her country. Since there is interdependence between these two assessments⁶, the addition of the more general corruption evaluation slightly lowers the coefficient on the wallet variable, to 0.157. Adding regional fixed effects in equation (3) tightens the fit of the equation slightly, and makes another small reduction in the wallet coefficient, reflecting the fact that there are systematic regional differences in the assessed likelihood of wallet return. Equations (4) to (6) repeat equations (1) to (3), but in each case add a measure of net affect, to provide some idea of how robust the wallet responses are to the inclusion of a variable likely to capture personality differences among individuals and short-term factors that might affect both mood and life evaluations. As found earlier in Helliwell (2008, Table 4), adding separate measures of individual-level positive and negative affect significantly increases the explanatory power of the equation (with positive affect having a larger impact than does the absence of negative affect⁷), but has fairly small effects on the size and significance of other variables. This is because life circumstances, including such variables as family income and the climate of trust in which people live, have much greater impacts on life evaluations than on moods, making life evaluations a preferred vehicle for assessing the relative importance of various life circumstances.

The other panels of Table 2 repeat the same equations, but use different wallet variables. The second and third panels use respondents' assessments of the likelihood of their lost wallets being returned if found by police officers or by strangers, respectively. The fourth panel uses the average of the three assessments. There is a fairly uniform pattern apparent when moving from panel to panel, and this pattern applies to each of the six alternative equations. The wellbeing effects of expected wallet return are slightly larger and more significant for police than for neighbours, and for either than for strangers. However, the most striking change happens when we move to the fourth panel, where the three measures are averaged. The coefficient on the average is much larger and more securely estimated than on any of the three component measures. The coefficients on the three component variables range from 0.159 for stranger to 0.218 for police (from equation (1) in each of the first three panels of Table 2). By contrast, the coefficient is 0.359 for the average variable. That the coefficient should be larger for the combined variable is eminently reasonable, since there is no telling who might be the finder of a lost wallet, and one's sense of security is surely higher when the likelihood of return is high regardless of who the finder might be. The individual measures no doubt have other links to subjective wellbeing. For example, whether a wallet would be returned by a neighbour has implications about the likely helpfulness of neighbours in other circumstances, with the same being true for police and strangers. Thus when we turn, as we now do, to consider the income-equivalence of belief in the likelihood of wallet return, we should be thinking not just

⁶ For the global sample of individual-level responses, the simple correlation between the overall measure of wallet return (the average of the neighbour, police and stranger responses) and the assessment of corruption (the average of each individual's zero or one answers as to the prevalence of corruption of business and of government in their country is -0.25).

⁷ This is consistent with the experimental results of Cohen and Pressman (2006) showing that the links between moods and resistance to the common cold are larger and more significant for positive than for negative affect.

of how much a wallet is worth to us, in either material or psychological terms, but of a whole range of occasions when neighbours, police and strangers might be able and willing to be of assistance.

To get an idea of the income-equivalent value of living in a society where wallets are expected to be returned, we can simply divide the wallet-trust coefficient by that of household income. Using the combined wallet measure from equation (1) in the fourth panel of Table 2, the compensating differential is 0.628 ($=0.359/0.571$). This is a large effect, especially if we compare countries with very different climates of trust. For example, to live in a country like Norway (mean expected wallet return is 0.80, actual *Reader's Digest* experimental return in Oslo 100%) rather than one like Tanzania (mean expected wallet return is 0.27) implies a life evaluation higher by 0.19 points on the ten-point scale, equivalent to an increase of 0.33 in the log of household income, representing an increase of almost 40% in the level of household income.

In Table 3 (pp. 67-68) we present our estimates of the life satisfaction effects of several different measures of trust using the GSS17 data. The first equation includes three separate measures of trust, each of which takes a large and highly significant coefficient. This is so despite the inclusion of a large number of other individual and contextual effects, including several measures of social capital that might be expected to positively affect both trust and wellbeing. The GSS17 data contain a number of measures of the size and quality of each respondent's own social connections, as well as a number of census-based contextual variables.

Table 3 shows that French-speaking respondents have a significantly higher life satisfaction for a given trust level, but not if the trust variables are removed. This reflects much lower measured trust among francophones, with the implied negative effects of this lower average being offset by the coefficient shown in the table. Relative to unmarried respondents living alone, those who are married or living as married are significantly happier, by about one-third of a point, while those who are separated, divorced or widowed are significantly less happy, by about one-quarter of a point. Age effects are, as usually found in wellbeing studies (Blanchflower and Oswald 2008), represented by very significant negative effects on age and positive effects on age-squared, with an implied low point of the U-shape in life satisfaction at about age 50. The gender effect, for given levels of the economic and social variables, favours females by about 0.13 of a point, although this effect becomes smaller when the model is expanded, as shown in the right-hand side of Table 3, to include measures of one's feelings of belonging in one's community, province and nation.

The GSS17 asks about each respondent's typical labour force status over the previous 12 months. Those who answer 'unemployed' have systematically lower life satisfaction above and beyond those effects flowing through the implied changes in household income. Being unemployed is associated with life satisfaction being lower by two-thirds of a point on a ten-point scale, far more than the effects of moving from the bottom to the top decile of the income distribution, although not as large as the combined effects of the various trust measures.

The education variables have scant direct linkages to subjective wellbeing, except for a negative effect of the highest level in the base equation. As we shall see later, this is because there is a strong positive linkage from tertiary education to trust measures, and especially for the social trust variable. The equations also control for income, which is positively related to the level of education. These results suggest that the wellbeing effects of education are largely mediated by income and trust.

All equations in the table include two variables that tap into basic elements of personality, as captured by the respondent's feeling of control and capacity to implement change. These

variables are both strongly and positively related to life satisfaction, and should serve to reduce the likelihood of a positive bias on trust effects flowing from individual-level personality traits influencing both trust assessments and life satisfaction.

Respondents are asked to estimate the number of close friends and relatives they have, and each of the response categories is shown separately for friends and family. There is a strong dose-response relation in both cases. Moving from each friends category to the next higher one adds about 0.1 to life satisfaction, with the size of the family effect being about 50% larger. There is some evidence of diminishing returns as circles of family and friends grow in size, since the number of additional friends or relatives involved grows with each move from one category to the next. Other tests not shown in the table show that the extra life satisfaction, measured in points, from having more friends and relatives is constant for an equal proportionate increase in the number of friends and family, with some evidence of diminishing and even negative marginal effects for very large families. The significant positive coefficients on the see-friends and see-relatives variables show that the frequency of visits with family and friends, especially the latter, adds significantly to life satisfaction, above and beyond the benefits of having these support networks in place.

Membership measures of social capital have no direct effects on life satisfaction, beyond a positive effect of religious memberships in the basic equation. This is in an equation that already controls for the respondent's friendships and trust assessments. We shall show later that both religious and non-religious memberships have strong positive effects on trust, suggesting that the wellbeing benefits of social networks, insofar as they are represented by memberships, are mediated by trust. There follow seven census-tract measures of the social context. None have significant effects on life satisfaction, so they will be described when we present our trust equations, as several of the census contextual variables come strongly into play at that time.

The second and third equations add an increasing number of measures of identity, as represented by each respondent's feelings of belonging to their local community, their province, and to Canada as a whole. Each of these identities matters significantly, with no evidence that having one identity detracts from the life satisfaction benefits of the others⁸.

The fourth equation adds two additional trust measures: trust in co-workers and confidence in police. Both are highly significant, with trust in co-workers being the single most significant of all of the trust measures⁹. The fifth and final equation in Table 3 adds a second GSS measure of trust in neighbours. Because this final equation now includes two measures of neighbourhood trust, we can see that the more general of the two neighbourhood trust questions appears to subsume the answers to the wallet-found-by-neighbour measure, since the latter variable is no longer significant. Finally, we note that when we include all of our directional trust measures (for co-workers, neighbours and police) the general social trust variable drops out. We think that this validates both types of measure. The social trust measure, which is very important on its own, is an umbrella supported by equally significant and collectively more informative evaluations about trust in different domains of life.

⁸ To check for interactions, we prepared a variable that takes the value of 1.0 for respondents who are very attached to their community, their province, and to Canada as a whole. The variable takes an insignificant positive coefficient, implying that one can add additional nested or encompassing identities without reducing the life satisfaction benefits of other identities. Thus there is no sense in which local, provincial and national attachments compete with one another in terms of what they contribute to life satisfaction.

⁹ A variety of workplace trust results, from both Canada and the United States, are analyzed in more detail in Helliwell and Huang (2008, 2010) and Helliwell *et al.* (2009).

To summarize our key results on the value of trust, and to facilitate their comparison with results from earlier studies, Table 4 (pp. 69-70) shows estimates of income-equivalent values (often referred to as compensating differentials, as in Helliwell and Huang (2010)) for a number of trust measures. These include the results from the wallet-return measures used in equation (1) of Table 2 and several measures of trust used in equation (5) of Table 3, as well as from other samples of Canadian and United States data. In all cases the compensating differentials of trust are seen to be very large.

4. Trust saves lives

Although life evaluations provide a critically important way to assess the importance of trust, they cannot provide the whole story. Beyond life evaluations lies life itself, and a range of studies have shown several channels through which trust improves health and saves lives. The mortality studies dovetail with and reinforce the evidence based on life evaluations. The dovetailing is obvious, since the life evaluations measure only the wellbeing of survivors, picking up mortality effects indirectly, via the loss of loved ones and expectations about what the future may hold in store. The direct mortality estimates thus fill in an important gap.

The reinforcement comes about because many who may initially be doubtful about the value and meaning of subjective life evaluations may be convinced if the same variables that explain subjective life evaluations have consistent consequences for fatalities. For example, those who are willing to make inferences about utility only from what people do (the 'revealed preference' methodology), and not from what they say, cannot fail to accept suicide as evidence of individual choices with real consequences, even though of the most final and unfortunate sort. Indeed, our studies of the links between social capital and suicide were undertaken to help answer the inevitable sceptical question from almost any audience, especially one of economists, asking how the high measures of subjective wellbeing in, e.g., Sweden, could be reconciled with what were presumed to be very high suicide rates there. The answer, as reported in Helliwell (2007), was obtained by using cross-national data to fit exactly comparable models for national averages for life satisfaction and for suicide rates. These models fit the cross-national data for global samples very well, with the same small set of variables explaining 60% and 81% of the cross-national variance of suicide and life satisfaction, respectively (Helliwell 2007, p. 485). Although the same variables appear in both equations, the coefficients differ, in just the way that theory and previous studies would suggest, with religion, social connections and divorce all having larger coefficients in the suicide equation, and the quality of government being more important for subjective wellbeing. Interpersonal trust, as measured by the national average response to the social trust question, had equally large effects in both equations. Sweden, which is explained very well by both equations, is nearer to the top of the wellbeing ranking than near the bottom of the suicide rankings because of its relatively high divorce rates, the relatively low importance of religion, and relatively high quality of government.

These parallel results for suicide and subjective wellbeing are buttressed by large prospective studies in Finland showing that males near the bottom of the life satisfaction scale were 25 times more likely to commit suicide over the following ten years than were other males of the same age (Koivumaa-Honkanen *et al.* 2001).

The suicide results can be used to assess the life-saving potential for social trust, since international differences in the average answers to the social trust question play an important role in explaining international differences in suicide rates. Among the countries covered by the three World Values Survey waves used for the suicide study, the average suicide rate is about

16.4 per 100,000 of population. The basic suicide equation in Helliwell (2007, Table 1) explains 58% of the variance of 117 average suicide rates drawn from different years in 50 countries around the world using only four key variables: social trust, membership in community organizations, strength of religious belief, and the divorce rate. The first three variables act to reduce suicide, while higher divorce rates are associated with higher suicide rates. The effects of social trust are large and statistically significant. Moving 10% of the population from generally untrusting to generally trusting, a shift of 0.1 on the 0 to 1.0 scale for the social trust variable, or less than one standard deviation for the sample data, would be predicted to lead to a 2.3 ($=0.1 \times 23$) drop in the suicide rate, more than 10% of its average value. In Russia, with a population of roughly 150 million, this would translate into 3,600 lives saved each year.

The idea that traffic fatalities, which are about as frequent as suicides, could be linked to social capital, and to trust in particular, occurred to Helliwell when reading an article in *Le Monde* by A. Grebjine. The article, which appeared during the course of an OECD meeting of social capital experts, attributed the much higher traffic fatality rates in France than in Norway (about twice as high) to a greater Norwegian adherence to a broader social contract. Since the proportion of Norwegians who think that others can be trusted is two to three times higher than in France, this raises the possibility that there might be a broader systematic relation between social trust and traffic fatalities. The test was done using the same equation and sample as was used for suicide, and both trust and memberships had highly significant roles in explaining international differences in traffic fatality rates (Helliwell 2007, Table VI). When the traffic fatality equation was extended to include some traditional determinants, including incomes and vehicle use, and the time trend toward safer cars and safer roads, the trust effect rose slightly, to almost exactly the same value as in the suicide equation. This was not simply due to the special circumstances of Norway and France, as the results were essentially unchanged if these countries were removed.

Since traffic fatality and suicide rates are roughly equal, as are the trust effects in the two equations, changes in social trust have the same potential for saving lives in both cases. In particular, if social trust in France were as high as in Norway, the French traffic fatality rate, according to the equation, would be reduced by more than half, taking it down to the Norwegian level¹⁰. These are big effects, whether seen nationally or globally, where suicide and traffic fatalities are roughly tied as the tenth leading cause of death.

5. Building and maintaining trust

Since trust has been shown to be closely linked to wellbeing, it is a natural next step to investigate how trust might be built and maintained (Alesina and La Ferrara 2002). Although we do not have data sufficient to support study of the dynamics of trust, the cross-sectional surveys can at least give some idea of the circumstances that accompany high and low levels of trust, even if the direction and strength of the causal linkages remain to be unpacked. The Canadian GSS17 data are more useful for this purpose than the Gallup World Poll, since the GSS17 includes many more individual-level measures of social capital and social connections, and its geo-coding permits us to include many census-based measures of the social context in which the respondents live.

Table 5 (pp. 71-72) shows equations for the individual-level responses to six different trust questions asked in the GSS17. The first column is for the general interpersonal social trust

¹⁰ Nagler (2009) also finds that a parallel result applies when he explains interstate differences in traffic fatalities within the United States.

question, and column 2 models trust in co-workers. Columns 3 and 4 model the answers to the GSS general questions about trust in neighbours and strangers, respectively. Columns 5 and 6 show equations examining answers about the likelihood of a lost wallet containing \$200 to be returned if found by a neighbour or a stranger, respectively.

We use the same independent variables in all equations, but we have strong prior expectations about their likely relative importance in different equations. For example, we would expect variables measuring the strength and length of an individual's attachment to his or her neighbourhood to have much stronger effects in the equations explaining trust in neighbours. This is indeed the case, as the variables measuring number of years in the neighbourhood, census-tract average mobility, and census-tract population density all have much greater effects in columns 3 and 5, which refer specifically to trust in neighbours.

The first variable in each equation (imported trust) tests for an effect found earlier by Rice and Feldman (1997) using US GSS data, and by Soroka *et al.* (2006) using Canadian ESC data. The variable measures the average level of social trust in the respondent's country of birth (using data from the World Values Survey) less the average Canadian value for the same World Values Survey trust measure. The coefficient on the variable thus measures the footprint of the trust level in the respondent's country of birth. If the coefficient were 1.0, then immigrants would implicitly be answering the GSS trust question based on their experiences in their country of birth. The GSS results show a first-generation footprint of almost two-thirds in the social trust equation, with much smaller values for the more directional trust measures, and no effect at all for the wallet questions. Milroy (2009) found some evidence of this footprint decaying with years since immigration. She also tested the corresponding second-generation variable for those who were born in Canada with one or more immigrant parents. This effect was smaller and less significant in all cases, thus supporting the presumption that the social trust question is taken to refer to the surroundings one knows, with the imprinted effects from one's earlier environment fading with the number of years one lives in Canada¹¹. Similarly, the effect is less where the question is very specific, and closely related to everyday life in Canada, such as when the respondent is asked about what would happen if they lost their wallet in their Canadian neighbourhood.

The level of social trust among French-speakers is significantly lower than for other respondents, by almost one-quarter. The effect is very much smaller for all of the more specific trust measures than for general trust. Longpré (2009) finds that the lower social trust is concentrated among those francophones living in census tracts with a high proportion of Catholics, and among Quebec-resident francophones who identify strongly with Canada. She suggests that the former result might be a footprint of the long church domination of Quebec society. The latter effect could reflect a situation where the emergence of secessionist views in Quebec poses especial identity risks, and diminished social trust, among those Quebec francophones who feel the greatest sense of belonging to Canada, since the possibility of secession poses for them the greatest problems. But, as Longpré argues, these results need more unpacking.

Turning to demography, the married are significantly more trusting than the rest of the population, with no significant differences among the remaining groups. All trust measures appear to increase with age, although this effect is not statistically significant for expected wallet return by neighbours. Workplace trust and trust in strangers appear to decrease with

¹¹ In her GSS17 equation for social trust, she finds a coefficient of 0.736 ($p < 0.001$) on imported trust, compared to 0.320 ($p < 0.05$) for parental trust. This confirms the declining-effects pattern first documented in Soroka *et al.* (2006).

age-squared, which implies an inverted U-shape for these two trust measures. Women are significantly less trusting (than are men) of co-workers, strangers, and wallet return by a neighbour. They are also less likely to give positive answers to the compound social trust question, probably because of the compound nature of the question. An earlier US GSS split the two parts of the question, and it was found (Helliwell and Putnam 2007, p.15) that women were more trusting than men when asked merely if other people can be trusted, but were also more likely to be cautious, and agree that 'you can't be too careful when dealing with people'.

The differences in the sources of different types of trust become even more apparent when mobility is assessed. The individual-level mobility variable measures the number of years that the individual has lived in the same neighbourhood, measured as a fraction of five years, since 'five or more' is at the top of the response scale. Staying rooted in the same neighbourhood for a longer period, at least up to five years, is associated with higher assessed values of all types of trust. As expected, the effects are three times larger for neighbourhood trust than they are for trust in other domains.

The links between social trust and education, especially tertiary education, are positive and large at both the individual and census tract levels. This appears to be an almost universal finding in trust equations (Helliwell and Putnam 2007), providing one of the strongest pieces of evidence for positive external effects of increasing education levels.

The next two variables measure each respondent's memberships in religious and non-religious groups. Religious memberships have significant positive effects ($p < 0.001$) for all sorts of trust, and other memberships have equally significant effects for all but trust in neighbours and co-workers. The effects of both types of memberships are largest in the social trust equation¹², where they are significantly greater for other memberships. We found in the GSS life satisfaction equations that there were strong effects from several different sorts of trust, but no direct effects from memberships. The combination of the life satisfaction and trust equations suggests a strong effect from memberships to life satisfaction, apparently entirely mediated by several types of trust. This causal interpretation has been called into question by others (e.g. Uslaner 2002) who would argue that the causal linkage is more likely to flow from trust to engagement rather than from engagement to trust, as we argue. While we would certainly agree that there may be a positive effect running from trust to engagement, we are convinced by the experimental evidence that manipulates engagement and finds significant changes in estimates of social trust. See, for example, the field experiments of Gyarmati *et al.* (2008) and lab experiments running back over fifty years, from Deutsch (1958) through scores of other controlled experiments. Meta-analyses of these results from Sally (1958) to Balliet (2010) show that subjects who have communicated with each other are far more likely to display trust in subsequent experiments, with face-to-face communications having effect sizes twice as large as written or electronic communications. These controlled experiments, where causal direction is not at issue, are very compatible with our GSS17 results showing that memberships, network size and frequency of face-to-face contacts all have positive dose-response linkages with trust assessments.

The final two individual-level variables are intended to control for aspects of each individual's personality and circumstances. They are strongly significant, and are intended to limit the risks that other variables should be picking up individual-level personality differences

¹² Stolle (1998), using German and Swedish data, finds a similar positive relation between association memberships and social trust, plus evidence that there is a positive feedback loop, with those who are initially more trusting being more likely to join groups, while those who have been in a group for a few years have significantly higher trust than new members, with some fall-off indicated also for long-time members.

that might otherwise bias the effects being measured elsewhere in the equation. Household income does not appear in the trust equations, since it was found to have no significant effects.

We turn now to consider community-level effects. The level of trust, and especially of neighbourhood trust, depends not only on the characteristics and life circumstances of each individual, but also on those of people living around them. To separate these two sorts of effect requires the sort of two-level modelling that we show in Table 3, with separate accounting of individual-level and community-level variables, and with errors clustered at the level of the census tract, which is our primary measure of the local community context. Putnam (2007) uses precisely the same analytical structure to show that several community-level variables¹³ have important effects on neighbourhood trust. We have a number of the same variables, and find strong contextual effects especially for neighbourhood trust. For general social trust, we find strong contextual effects only for education (echoing the earlier results of Helliwell and Putnam 2007, and others¹⁴), and for the census tract's population share of visible minorities. For neighbourhood trust, as would be expected, the range of significant contextual variables is larger. The results confirm theoretical expectations that trust takes time to build and maintain, with this process being more difficult in communities with fast rates of turnover. For example, both census-tract population density and population mobility strongly reduce the level of neighbourhood trust. The census tract share of visible minorities has a negative effect for all the trust measures¹⁵.

6. Comparing actual and expected trustworthiness

The *Toronto Star* (Zlomislic 2009) recently replicated the *Reader's Digest* dropped-wallet experiments that inspired the subsequent Canadian GSS and Gallup World Poll survey questions. This makes possible a direct comparison between actual trustworthiness, as measured by the actual frequency of wallet return, with expected trustworthiness, as measured by survey responses about the likelihood of a lost wallet being returned. Respondents are asked about the expected trustworthiness of different hypothetical wallet-finders. As we have shown earlier in the paper, there are large differences among countries, and among cities, in survey responses about the likelihood of a lost wallet being returned. The forecasts also depend on who is stipulated as finding the wallet. Expectation of more likely wallet return was shown to

¹³ Ranked in order of their importance, in terms of standardized Beta coefficients, the top community contextual variables Putnam found, in the explanation of trust in neighbours, were: census tract poverty rate, county level non-violent crimes rate, census tract Herfindahl index of ethnic homogeneity, census tract population density, census tract population mobility, census tract percent renters and census tract percent with a bachelor's degree or more (Putnam 2007, p. 152).

¹⁴ The implied community-level linkage running from education to trust (obtained by summing the individual-level and contextual effects) may be less securely established across nations, as argued by Bjørnskov (2006). Our two-level results using data from a single country are less open to the risks of reverse causation than are studies based on national average data, although it is still natural to expect that societies or communities marked by high mutual trust are more likely to be inclined to provide public goods and services, including especially health and education.

¹⁵ There were no effects found for the immigrant share in the census tract, beyond whatever effect that migration would have on census tract levels of mobility and diversity. Our results for income diversity match those of Putnam, while those for ethnic diversity match those of Kazemipur (2006) rather than those of Putnam. However, it is likely that the percent of the population who are visible minorities (many of whom are recent migrants, and come from many different cultures) is representing the same effect that Putnam found with his ethnic diversity measure. Milroy's analysis of social trust in GSS17 shows no negative effect from visible minority share, but does not include the Herfindahl diversity index, and thus what we find as offsetting effects from diversity and visible minority share are shown implicitly by her equation as an insignificant net effect. More detailed analysis of these effects is perhaps better done with the Canadian Ethnic Diversity Survey, which has a larger sample and more details about each respondent's migration and ethnic background.

be tightly linked with subjective wellbeing. We argued at the beginning of the paper that these SWB-supporting feelings of trust will be sustainable in the longer term only if they are in turn based on credible evidence of trustworthy behaviour (see also Putnam 2000, 135-6). Trust eventually crumbles in the face of untrustworthy behaviour, and has been shown to be hard to rebuild. On the other hand, a climate of unsubstantiated distrust is needlessly destructive of wellbeing, leading people to draw back and 'hunker down' (as emphasized by Putnam 2007), thereby losing opportunities for wellbeing-enhancing social interactions.

Thus it is valuable to be able to see if experience supports trust judgments. Such evidence is hard to come by, since it is almost impossible to find matching data on expected and actual trustworthiness. Fortunately, the recent wallet experiments in Toronto enabled an accurate matching, and hence permit a direct comparison of the actual frequency of returned wallets to the estimates made by GSS respondents living in the same community. All of the returned wallets were found by strangers (since the identical dropped wallets, containing money, bank cards, a personal letter and an emergency telephone number, all belonged to the same fictitious individual), so their frequency of return can be compared directly with the GSS survey responses of the likelihood of a lost wallet being returned if found by a stranger. As shown in Figure 2 (p. 73), Torontonians are far more altruistic than they think each other to be. The forecast frequency for return of a lost wallet found by a stranger in Toronto was 25%, while in fact 16 of the 20 wallets were returned, for an 80% return rate. There were many survey respondents, and a small number of wallets dropped, so the 95% confidence region shown by the vertical bar is much tighter for the survey than for the actual number of wallets returned¹⁶. Nonetheless, a *t*-test of the difference in means has a value of 8.0, suggesting that there is less than one chance in a hundred billion that the two means are the same. The difference is large as well as significant—more than three times as many wallets were returned than was forecast by the survey respondents¹⁷.

This significant underestimation of the trustworthiness of others, as confirmed by many experiments (e.g. Ashraf *et al.* 2006, Fetchenhauer and Dunning 2009) also has parallels in crime statistics¹⁸. For example, comparable criminal victimization surveys take place in many countries, wherein, among many other questions, respondents are asked whether they have been victims of attempted or actual burglary in the previous year, and also how likely they think themselves to be burglarized in the next year. The average among 30 countries for attempted or completed actual burglaries was 3.5% (about half of which were attempts; van Dijk *et al.* 2007, p. 69). By contrast, the average fraction of respondents who thought they were

¹⁶ The asymmetry of the error bar for the experimental data is a consequence of the underlying binomial distribution.

¹⁷ There are some practical complications with the experiments that might qualify these conclusions slightly. On the one hand, wallets were apparently returned by second finders in two cases. One previous finder tried unsuccessfully to use the bank card, but left the cash intact before dropping the wallet again beside the unco-operating bank machine. The other first finder apparently took the cash and returned the wallet to the ground. The four unreturned wallets may have never been found by anyone. If we adjust the data to treat the two first finders as untrustworthy, and assume that all four of the never-returned wallets were found but not returned, then we have the most conservative way of treating the data, as 16 returned wallets out of 22. But the difference of means is still very significant ($t=7.27$), with less than one chance in a billion of the two means being the same.

¹⁸ Fetchenhauer and Dunning (2009) also show, fortunately, that although people lose subjective well-being by their low trust estimates, they somewhat mitigate the adverse social consequences by being more trusting of others than self-interested calculations would suggest they should be, in the light of their estimates of the trustworthiness of others. Since the survey trust measures used in this paper are basically the perceived trustworthiness of others (Fehr *et al.* 2003, Sapienza *et al.* 2007), they do not directly capture the unconditional kindness behaviour found by Ashraf *et al.* (2006).

likely or very likely to be burglarized over the following year was 29% (van Dijk *et al.* 2007, p. 128).

What are the likely causes and consequences of these large and widespread divergences between actual and expected trustworthiness? It is plausible that media and other reports of bad events lead to over-estimation of their likely frequency. We are not studying here the widely noted distinction between risk of crime and fear of crime (e.g. Rountree and Land 1996), but between perceived and actual incidence of crime, or, in our lost-wallet case, between the perceived and actual likelihood of altruistic behaviour. What are the likely wellbeing consequences of such a gap? First, it is important to know whether it is the perceived or actual likelihood of behaviour that influences wellbeing. We have already shown that the perceived likelihood of wallet return is strongly linked to subjective wellbeing. But we do not know whether trustworthiness affects subjective wellbeing only through trust perceptions, or by some other channels. We do not have enough wallet data to assess this possibility, but we can ask, using the international victimization survey data, whether actual or perceived rates of incidence for burglaries are correlated with international differences in subjective wellbeing. We find, for the 28 countries that have World Values Survey life satisfaction data and both estimates of burglary frequency, that the simple cross-country correlation between life satisfaction and burglaries is zero for the sum of actual and attempted burglaries and -0.37 ($p=0.05$) between life satisfaction and the average perception of future burglary risk¹⁹. Thus it would appear that it is perceived rather than actual trustworthiness that is directly linked to subjective wellbeing. If this is confirmed more broadly, it suggests that substantial, and essentially costless, increases in subjective wellbeing could be obtained if people were better informed, and hence more optimistic, about the trustworthiness of others. There may also be a virtuous circle, whereby greater confidence in the norms of wallet return and other altruistic acts would encourage people to engage more freely with others, and to raise the standards for their own behaviour, because such norms are heavily dependent on the expected behaviour of others.

7. Conclusions

We have confirmed that trust and wellbeing are tightly linked. Our new results show that those who feel themselves to be living in a trustworthy environment have much higher levels of subjective wellbeing. Worldwide, using the data from the Gallup World Poll, those who think their lost wallet would be returned if found by a neighbour or the police value their lives more than 7% higher than do those who do not think their wallets would be returned.²⁰ This is about the same increase in subjective wellbeing that would be associated with an increase of household income of about two-thirds. Although causal links between trust and subjective wellbeing cannot be identified by our regressions, evidence on the stability of trust across generations, and results showing that experimental administration of oxytocin (Kosfeld 2005) increased trusting behaviour, but did not alter evaluations of the trustworthiness of others, combine to give us some confidence that substantial causal effects run from trust to subjective wellbeing (since our trust variables are all estimates of the trustworthiness of others). Caution is needed in interpreting the size of the estimated effects, since bi-directional positive effects are to be expected.

¹⁹ We also find that the link between perceived risk of burglaries and SWL is entirely mediated by social trust, as the partial correlation between burglary risk and SWL is zero once social trust is taken into account.

²⁰ The percentage is based on the coefficient on the combined wallet response in equation (1) of Table 3-d, divided by the global average value of the responses to the Cantril Ladder, then converted to percentage form.

In the Canadian data, which include a larger number of trust questions, the wellbeing effects of living in a high-trust environment are even greater. Having high trust in co-workers, which we find to be the largest of all the specific directional trust measures, is associated with 7.6% higher life satisfaction. This is followed by trust in neighbours (5%), confidence in police (3%), and a belief that a stranger would return the lost wallet (2.5%). Since these effects are all estimated at the same time (as shown in equation 5 of Table 3, and converted to percentage form in relation to sample-average satisfaction with life), we can calculate how much higher life satisfaction is for those who have high levels of trust in all these life domains. The answer is more than 18%. Even these large combined effects may not be the whole story, since the equations used for these calculations also include several key measures of belonging, some of which are clearly based on, and are contributing to, levels of trust within the community. For example, someone who feels a strong sense of belonging to their community is estimated to be 11% more satisfied with his or her life. As shown in the various panels of Table 4, these effects are all very large when measured in terms of the income changes that would produce the same consequences for subjective wellbeing.

Since trust is so directly and strongly linked to subjective wellbeing, in addition to supporting many other economic and social activities that also affect wellbeing directly, it is important to consider what contributes to building and maintaining trust. Survey data and experiments alike suggest that trust is built on a base of shared positive experience, and is nurtured by continued connections. We find, using the rich social context details of the Canadian GSS17, that the quality of social connections matters a lot to the maintenance of trust. In ways that validate the trust measures and theories of trust formation, general factors matter most for the determination of social trust, while neighbourhood characteristics matter most for neighbourhood trust. For example, the effects of individual-level and census-tract-level measures of education are strongly supportive of social trust, as are the respondent's memberships in social organizations, and the level of social trust in the country where the respondent was born.

For neighbourhood trust, by contrast, what matters most is how long the respondent has lived in his or her neighbourhood, and how easy it is to meet and interact with neighbours in friendly ways. Thus respondents who live in census tracts where the population is dense and highly mobile are less likely to trust their neighbours, or to judge that neighbours would be likely to return each other's lost wallets. Similarly, a feeling of belonging to one's community is more strongly associated with neighbourhood trust, while a sense of belonging to Canada is more strongly associated with general social trust. Community-level and national belonging are significantly related to all types of trust, with the effect sizes varying in the theoretically expected ways.

Overall, our results reveal sufficiently strong linkages between trust and wellbeing to support much more study of how trust can be built and maintained, or repaired when it has been damaged. Our more tentative analysis of the factors supporting different types of trust suggests that more attention should be paid to creating the time and spaces for social connections to flower. Since more and more people are living in large urban areas with mobile and sometimes rootless populations, it is ever more important to design and manage urban areas in ways that foster levels of engagement that support mutual trust and hence wellbeing. Finally, our comparison of the actual and expected frequencies of wallet return suggests that people are unrealistically pessimistic about the trustworthiness of others. This presumably remediable pessimism is likely to lead to lower subjective wellbeing, and to stand in the way of

the expanded social interactions that are so important in building and maintaining a trustworthy social fabric.

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Tables
Table 1-a: Correlation matrix for trust measures in GWP 2006

	Expected wallet return by neighbours	Expected wallet return by police	Expected wallet return by strangers	Average of the three wallet measures
Expected wallet return by neighbours	1.000			
Expected wallet return by police	0.494*** (0.000)	1.000		
Expected wallet return by strangers	0.262*** (0.000)	0.290*** (0.000)	1.000	
Average of the three wallet measures	0.800*** (0.000)	0.814*** (0.000)	0.634*** (0.000)	1.000

P-values in brackets; + p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 1-b: Correlation matrix for trust measures in Canadian GSS17

	General trust	Expected wallet return by neighbours	Expected wallet return by strangers	Trust in neighbours	Trust in co-workers	Confidence in police
General trust	1.000					
Expected wallet return by neighbours	0.244*** (0.000)	1.000				
Expected wallet return by strangers	0.266*** (0.000)	0.348*** (0.000)	1.000			
Trust in neighbours	0.362*** (0.000)	0.481*** (0.000)	0.233*** (0.000)	1.000		
Trust in co-workers	0.348*** (0.000)	0.253*** (0.000)	0.186*** (0.000)	0.485*** (0.000)	1.000	
Confidence in police	0.154*** (0.000)	0.180*** (0.000)	0.109*** (0.000)	0.214*** (0.000)	0.189*** (0.000)	1.000

P-values in brackets; + p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 2-a: Wellbeing equations, Gallup World Poll 2006

	Dependent variables: Cantril Ladder					
	(1)	(2)	(3)	(4)	(5)	(6)
Log of hh income	0.578** (0.036)	0.575** (0.036)	0.469** (0.036)	0.559** (0.035)	0.557** (0.036)	0.442** (0.035)
Expected wallet return by neighbours	0.179** (0.058)	0.157** (0.053)	0.150** (0.048)	0.152** (0.054)	0.127* (0.050)	0.117* (0.045)
Female	0.089** (0.028)	0.104** (0.031)	0.100** (0.030)	0.110** (0.029)	0.121** (0.032)	0.116** (0.032)
Married or as married	0.055 (0.041)	0.043 (0.041)	0.107** (0.038)	0.032 (0.040)	0.028 (0.041)	0.081* (0.037)
Separated, divorced or widowed	-0.031 (0.063)	-0.014 (0.067)	-0.033 (0.066)	-0.026 (0.065)	-0.014 (0.069)	-0.042 (0.068)
Age	-0.027** (0.006)	-0.028** (0.007)	-0.032** (0.007)	-0.022** (0.006)	-0.023** (0.00667)	-0.027** (0.007)
Age squared divided by 100	0.025** (0.007)	0.026** (0.007)	0.028** (0.007)	0.021** (0.006)	0.022** (0.007)	0.024** (0.007)
Life choice freedom	0.443** (0.056)	0.418** (0.052)	0.354** (0.046)	0.393** (0.055)	0.374** (0.054)	0.310** (0.047)
Friends to count on	0.531** (0.051)	0.556** (0.053)	0.494** (0.045)	0.447** (0.049)	0.478** (0.050)	0.412** (0.043)
Not enough money for food	-0.705** (0.048)	-0.673** (0.051)	-0.642** (0.047)	-0.607** (0.046)	-0.586** (0.049)	-0.546** (0.043)
Donation	0.332** (0.059)	0.307** (0.054)	0.218** (0.044)	0.290** (0.056)	0.277** (0.052)	0.188** (0.043)
Volunteering	0.065 (0.043)	0.042 (0.045)	0.052 (0.041)	0.045 (0.041)	0.027 (0.043)	0.035 (0.040)
Helped strangers	0.142** (0.044)	0.148** (0.044)	0.130** (0.041)	0.138** (0.043)	0.147** (0.044)	0.137** (0.042)
Importance of religion in life	-0.070 (0.086)	-0.058 (0.081)	-0.037 (0.065)	-0.109 (0.085)	-0.096 (0.079)	-0.061 (0.063)
Church attendance	-0.015 (0.053)	-0.012 (0.054)	0.019 (0.051)	-0.037 (0.049)	-0.032 (0.051)	0.008 (0.048)
Perception of corruption		-0.392** (0.105)	-0.283** (0.073)		-0.344** (0.105)	-0.238** (0.070)
Net affect				0.570** (0.045)	0.551** (0.048)	0.552** (0.045)
Constant	5.879** (0.200)	6.192** (0.236)	7.162** (0.171)	5.672** (0.198)	5.963** (0.234)	6.878** (0.170)
Region dummies	No	No	Yes	No	No	Yes
Number of obs.	57042	48597	48597	53563	46018	46018
R-squared	0.262	0.268	0.292	0.277	0.281	0.305

Standard errors in brackets; + p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 2-b: Wellbeing equations, Gallup World Poll 2006

	Dependent variables: Cantril Ladder					
	(1)	(2)	(3)	(4)	(5)	(6)
Log of hh income	0.570*** (0.037)	0.569*** (0.037)	0.460*** (0.037)	0.551*** (0.036)	0.552*** (0.037)	0.434*** (0.035)
Expected wallet return by police	0.218** (0.065)	0.177** (0.060)	0.163** (0.049)	0.196** (0.063)	0.156** (0.058)	0.138** (0.048)
Female	0.080** (0.028)	0.096** (0.031)	0.091** (0.030)	0.099*** (0.029)	0.112*** (0.032)	0.106** (0.032)
Married or as married	0.052 (0.041)	0.045 (0.041)	0.108** (0.038)	0.028 (0.041)	0.028 (0.041)	0.082* (0.037)
Separated, divorced or widowed	-0.017 (0.063)	0.005 (0.068)	-0.027 (0.065)	-0.013 (0.066)	0.007 (0.071)	-0.035 (0.068)
Age	-0.026** (0.007)	-0.026** (0.007)	-0.030** (0.007)	-0.020** (0.007)	-0.022** (0.007)	-0.026** (0.007)
Age squared divided by 100	0.024** (0.007)	0.024** (0.007)	0.025** (0.007)	0.019** (0.007)	0.021** (0.007)	0.021** (0.007)
Life choice freedom	0.426** (0.056)	0.405** (0.055)	0.340** (0.049)	0.383** (0.056)	0.366** (0.056)	0.302** (0.050)
Friends to count on	0.556** (0.054)	0.578** (0.058)	0.514** (0.048)	0.471** (0.050)	0.496** (0.053)	0.428** (0.045)
Not enough money for food	-0.713** (0.052)	-0.692** (0.054)	-0.657** (0.052)	-0.607** (0.049)	-0.596** (0.051)	-0.554** (0.047)
Donation	0.323** (0.059)	0.297** (0.055)	0.207** (0.046)	0.281** (0.056)	0.268** (0.053)	0.179** (0.045)
Volunteering	0.068 (0.045)	0.048 (0.047)	0.058 (0.043)	0.054 (0.042)	0.038 (0.044)	0.0454 (0.041)
Helped strangers	0.125** (0.045)	0.138** (0.045)	0.123** (0.042)	0.119** (0.045)	0.134** (0.046)	0.125** (0.044)
Importance of religion in life	-0.080 (0.084)	-0.076 (0.081)	-0.052 (0.067)	-0.119 (0.0822)	-0.113 (0.0779)	-0.077 (0.0640)
Church attendance	-0.011 (0.052)	-0.005 (0.055)	0.034 (0.052)	-0.033 (0.049)	-0.026 (0.052)	0.022 (0.049)
Perception of corruption		-0.365** (0.105)	-0.266** (0.078)		-0.315** (0.104)	-0.221** (0.075)
Net affect				0.565** (0.047)	0.547** (0.051)	0.551** (0.048)
Constant	5.853** (0.201)	6.160** (0.240)	7.116** (0.176)	5.632** (0.200)	5.921** (0.240)	6.824** (0.177)
Region dummies	No	No	Yes	No	No	Yes
Number of obs.	53431	45806	45806	50228	43393	43393
R-squared	0.265	0.272	0.295	0.279	0.284	0.308

Standard errors in brackets; + p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 2-c: Wellbeing equations, Gallup World Poll 2006

	Dependent variables: Cantril Ladder					
	(1)	(2)	(3)	(4)	(5)	(6)
Log of hh income	0.579*** (0.036)	0.577*** (0.036)	0.473*** (0.037)	0.562*** (0.036)	0.561*** (0.036)	0.447*** (0.035)
Expected wallet return by strangers	0.159* (0.070)	0.110+ (0.065)	0.084 (0.050)	0.144* (0.068)	0.094 (0.063)	0.074 (0.050)
Female	0.098** (0.029)	0.113*** (0.032)	0.110*** (0.031)	0.116*** (0.030)	0.129*** (0.033)	0.124*** (0.033)
Married or as married	0.036 (0.041)	0.027 (0.041)	0.091* (0.039)	0.017 (0.041)	0.015 (0.041)	0.068+ (0.037)
Separated, divorced or widowed	-0.007 (0.069)	0.011 (0.073)	-0.008 (0.068)	0.002 (0.071)	0.0116 (0.075)	-0.019 (0.071)
Age	-0.025*** (0.007)	-0.026*** (0.007)	-0.031*** (0.007)	-0.020** (0.007)	-0.022** (0.007)	-0.026*** (0.007)
Age squared divided by 100	0.023** (0.007)	0.023** (0.007)	0.026*** (0.007)	0.018* (0.007)	0.021** (0.007)	0.022** (0.007)
Life choice freedom	0.448*** (0.054)	0.430*** (0.052)	0.362*** (0.045)	0.394*** (0.056)	0.380*** (0.054)	0.311*** (0.048)
Friends to count on	0.557*** (0.053)	0.576*** (0.055)	0.510*** (0.046)	0.466*** (0.051)	0.485*** (0.053)	0.416*** (0.044)
Not enough money for food	-0.696*** (0.049)	-0.668*** (0.050)	-0.635*** (0.047)	-0.593*** (0.045)	-0.575*** (0.047)	-0.534*** (0.042)
Donation	0.321*** (0.058)	0.294*** (0.055)	0.206*** (0.044)	0.280*** (0.056)	0.265*** (0.053)	0.175*** (0.042)
Volunteering	0.048 (0.041)	0.036 (0.044)	0.047 (0.040)	0.030 (0.039)	0.024 (0.042)	0.033 (0.039)
Helped strangers	0.143** (0.044)	0.151** (0.045)	0.131** (0.041)	0.135** (0.044)	0.147** (0.045)	0.134** (0.043)
Importance of religion in life	-0.085 (0.087)	-0.071 (0.082)	-0.051 (0.065)	-0.119 (0.086)	-0.106 (0.081)	-0.072 (0.063)
Church attendance	-0.006 (0.051)	-0.011 (0.053)	0.022 (0.051)	-0.027 (0.048)	-0.028 (0.050)	0.013 (0.048)
Perception of corruption		-0.403*** (0.101)	-0.291*** (0.069)		-0.354*** (0.100)	-0.245*** (0.065)
Net affect				0.563*** (0.047)	0.547** (0.050)	0.549*** (0.048)
Constant	5.934*** (0.205)	6.269*** (0.236)	7.294*** (0.164)	5.725*** (0.204)	6.046*** (0.235)	7.017*** (0.164)
Region dummies	No	No	Yes	No	No	Yes
Number of obs.	50813	44048	44048	48002	41875	41875
R-squared	0.256	0.264	0.288	0.271	0.277	0.301

Standard errors in brackets; + p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 2-d: Wellbeing equations, Gallup World Poll 2006

	Dependent variables: Cantril Ladder					
	(1)	(2)	(3)	(4)	(5)	(6)
Log of hh income	0.571*** (0.038)	0.570*** (0.038)	0.458*** (0.038)	0.554*** (0.037)	0.555*** (0.038)	0.434*** (0.036)
Average of the three wallet measures	0.359** (0.106)	0.292** (0.092)	0.258** (0.072)	0.320** (0.101)	0.251** (0.089)	0.215** (0.070)
Female	0.085** (0.029)	0.102** (0.032)	0.096** (0.031)	0.101** (0.031)	0.116*** (0.033)	0.110** (0.033)
Married or as married	0.041 (0.041)	0.034 (0.041)	0.092* (0.038)	0.024 (0.042)	0.023 (0.041)	0.072+ (0.038)
Separated, divorced or widowed	0.002 (0.070)	0.031 (0.074)	0.002 (0.071)	0.012 (0.073)	0.034 (0.077)	-0.005 (0.074)
Age	-0.024** (0.007)	-0.025** (0.008)	-0.030*** (0.008)	-0.019* (0.007)	-0.020** (0.0076)	-0.025** (0.008)
Age squared divided by 100	0.022** (0.008)	0.022** (0.008)	0.025** (0.008)	0.017* (0.007)	0.019* (0.008)	0.021** (0.008)
Life choice freedom	0.425*** (0.059)	0.407*** (0.057)	0.339*** (0.051)	0.378*** (0.059)	0.364*** (0.059)	0.296*** (0.053)
Friends to count on	0.542*** (0.055)	0.561*** (0.056)	0.492*** (0.048)	0.466*** (0.053)	0.486*** (0.055)	0.414*** (0.046)
Not enough money for food	-0.696*** (0.052)	-0.672*** (0.052)	-0.634*** (0.051)	-0.596*** (0.049)	-0.582*** (0.050)	-0.538*** (0.046)
Donation	0.300*** (0.058)	0.281*** (0.055)	0.186*** (0.044)	0.259*** (0.056)	0.250*** (0.054)	0.155*** (0.042)
Volunteering	0.050 (0.043)	0.039 (0.046)	0.046 (0.042)	0.038 (0.041)	0.034 (0.044)	0.038 (0.041)
Helped strangers	0.121* (0.046)	0.130** (0.046)	0.114* (0.044)	0.115* (0.046)	0.126** (0.047)	0.118* (0.045)
Importance of religion in life	-0.080 (0.085)	-0.077 (0.081)	-0.046 (0.066)	-0.115 (0.083)	-0.112 (0.078)	-0.069 (0.063)
Church attendance	-0.011 (0.053)	-0.008 (0.055)	0.031 (0.052)	-0.027 (0.050)	-0.024 (0.052)	0.024 (0.050)
Perception of corruption		-0.359** (0.101)	-0.251*** (0.070)		-0.320** (0.101)	-0.215** (0.067)
Net affect				0.539*** (0.047)	0.527** (0.051)	0.531*** (0.049)
Constant	5.818*** (0.220)	6.133*** (0.252)	7.157*** (0.185)	5.607*** (0.217)	5.910*** (0.250)	6.892*** (0.184)
Region dummies	No	No	Yes	No	No	Yes
Number of obs.	45630	39980	39980	43336	38168	38168
R-squared	0.266	0.272	0.298	0.279	0.284	0.309

Standard errors in brackets; + p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 3: Life satisfaction equations, Canadian GSS17

	Dependent variables: life Satisfaction				
	(1)	(2)	(3)	(4)	(5)
Log of hh income	0.174*** (0.021)	0.178*** (0.022)	0.179*** (0.021)	0.170*** (0.022)	0.166*** (0.022)
Expected wallet return by neighbours	0.285*** (0.045)	0.185*** (0.044)	0.172*** (0.045)	0.104* (0.046)	0.043 (0.050)
Expected wallet return by strangers	0.268*** (0.047)	0.237*** (0.049)	0.237*** (0.050)	0.206*** (0.051)	0.203*** (0.050)
General trust	0.100*** (0.029)	0.075** (0.028)	0.067* (0.028)	-0.035 (0.028)	-0.063* (0.029)
French as the first language	0.283*** (0.040)	0.222*** (0.040)	0.301*** (0.039)	0.267*** (0.038)	0.274*** (0.038)
Married or as married	0.344*** (0.037)	0.305*** (0.036)	0.305*** (0.035)	0.298*** (0.035)	0.295*** (0.035)
Separated, divorced or widowed	-0.246*** (0.056)	-0.252*** (0.057)	-0.259*** (0.056)	-0.269*** (0.056)	-0.276*** (0.058)
Age	-0.070*** (0.005)	-0.069*** (0.005)	-0.070*** (0.005)	-0.076*** (0.005)	-0.075*** (0.005)
Age squared divided by 100	0.070*** (0.005)	0.067*** (0.006)	0.068*** (0.005)	0.075*** (0.006)	0.074*** (0.006)
Female	0.125*** (0.026)	0.113*** (0.026)	0.115*** (0.026)	0.107*** (0.026)	0.110*** (0.026)
Unemployed	-0.647*** (0.099)	-0.619*** (0.101)	-0.613*** (0.101)	-0.572*** (0.101)	-0.567*** (0.103)
High school education	-0.025 (0.052)	-0.004 (0.050)	0.002 (0.050)	-0.003 (0.049)	-0.002 (0.050)
Started college or university	-0.099* (0.043)	-0.051 (0.043)	-0.045 (0.042)	-0.049 (0.040)	-0.048 (0.040)
University degree	-0.189*** (0.046)	-0.127** (0.045)	-0.124** (0.045)	-0.134** (0.045)	-0.134** (0.045)
Religious group membership	0.091** (0.034)	0.039 (0.034)	0.044 (0.034)	0.041 (0.033)	0.045 (0.033)
Non-religious group membership	0.010 (0.029)	-0.019 (0.028)	-0.018 (0.028)	-0.019 (0.028)	-0.018 (0.028)
Years living in the neighbourhood	0.137** (0.045)	0.054 (0.045)	0.062 (0.045)	0.044 (0.044)	0.023 (0.045)
Sense of control over things	0.271*** (0.049)	0.265*** (0.048)	0.265*** (0.048)	0.255*** (0.048)	0.250*** (0.048)
Ability to change things in life	0.709*** (0.072)	0.700*** (0.075)	0.687*** (0.075)	0.656*** (0.074)	0.660*** (0.074)
Number of close friends: 1 or 2	0.110 (0.083)	0.110 (0.084)	0.117 (0.083)	0.109 (0.082)	0.110 (0.082)
Number of close friends: 3 to 5	0.241** (0.087)	0.219* (0.087)	0.224** (0.086)	0.199* (0.081)	0.190* (0.082)
Number of close friends: 6 to 10	0.329*** (0.092)	0.269** (0.094)	0.273** (0.092)	0.238** (0.085)	0.226** (0.087)
Number of close friends: 11 to 20	0.382*** (0.103)	0.301** (0.103)	0.303** (0.100)	0.263** (0.093)	0.254** (0.094)
Number of close	0.432**	0.282*	0.295*	0.235+	0.218

friends: over 20	(0.148)	(0.141)	(0.138)	(0.132)	(0.133)
Frequency of seeing close friends	0.161*** (0.026)	0.108*** (0.026)	0.110*** (0.026)	0.096*** (0.026)	0.097*** (0.026)
Number of close relatives: 1 or 2	0.381*** (0.081)	0.332*** (0.082)	0.335*** (0.082)	0.316*** (0.082)	0.323*** (0.083)
Number of close relatives: 3 to 5	0.526*** (0.076)	0.460*** (0.078)	0.459*** (0.078)	0.427*** (0.078)	0.436*** (0.079)
Number of close relatives: 6 to 10	0.618*** (0.079)	0.524*** (0.080)	0.520*** (0.080)	0.481*** (0.080)	0.489*** (0.081)
Number of close relatives: 11 to 20	0.700*** (0.091)	0.603*** (0.088)	0.596*** (0.088)	0.547*** (0.088)	0.555*** (0.089)
Number of close relatives: over 20	0.658*** (0.112)	0.524*** (0.108)	0.521*** (0.108)	0.495*** (0.107)	0.499*** (0.108)
Frequency of seeing close relatives	0.096*** (0.026)	0.066* (0.026)	0.068** (0.026)	0.069** (0.026)	0.074** (0.026)
<i>Variables at the census tract level</i>					
Population density	-0.473 (0.345)	-0.526 (0.342)	-0.520 (0.341)	-0.514 (0.334)	-0.495 (0.333)
Proportion of high school graduates	-0.010 (0.150)	0.117 (0.162)	0.114 (0.158)	0.110 (0.158)	0.095 (0.166)
Proportion of people moved in last 5 years	-0.026 (0.128)	-0.078 (0.126)	-0.099 (0.126)	-0.142 (0.125)	-0.103 (0.126)
Median income	-0.001 (0.016)	-0.002 (0.016)	-0.006 (0.016)	-0.010 (0.018)	-0.018 (0.019)
Income diversity	-0.197 (0.161)	-0.214 (0.163)	-0.211 (0.162)	-0.184 (0.161)	-0.169 (0.164)
Herfindahl Index for ethnic diversity	0.068 (0.062)	0.034 (0.055)	0.046 (0.057)	0.040 (0.056)	0.034 (0.056)
Proportion of visible minorities	0.063 (0.098)	0.042 (0.096)	0.033 (0.096)	0.050 (0.096)	0.080 (0.096)
Sense of belonging to the community		0.872*** (0.057)	0.850*** (0.057)	0.815*** (0.055)	0.781*** (0.056)
Sense of belonging to the province		0.484*** (0.054)	0.316*** (0.058)	0.269*** (0.058)	0.274*** (0.058)
Sense of belonging to Canada			0.423*** (0.065)	0.377*** (0.069)	0.366*** (0.070)
Trust in co-workers				0.784*** (0.077)	0.683*** (0.076)
Not answered 'trust in co-workers' question				0.407*** (0.072)	0.329*** (0.075)
Confidence in police				0.389*** (0.057)	0.361*** (0.058)
Trust in neighbours					0.336*** (0.071)
Constant	5.449*** (0.265)	4.887*** (0.261)	4.717*** (0.259)	4.412*** (0.271)	4.405*** (0.272)
R-squared	0.129	0.167	0.171	0.187	0.188
Number of obs.	15505	15235	15190	15114	14896

Standard errors in brackets; + p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 4-a: Compensating differentials of trust in GWP 2006 ^a

	Expected wallet return by neighbours		Expected wallet return by police		Expected wallet return by strangers		Average of the three wallet measures	
Coefficient of the log of household income	0.58***	(0.036)	0.57***	(0.037)	0.58***	(0.036)	0.57***	(0.038)
Coefficient of trust	0.18**	(0.058)	0.22***	(0.065)	0.16*	(0.070)	0.36***	(0.106)
Compensating differential	0.31**	(0.10)	0.38**	(0.12)	0.28*	(0.12)	0.63**	(0.19)
95% confidence interval	[0.10, 0.51]		[0.15, 0.62]		[0.04, 0.51]		[0.25, 1.00]	

Standard errors in brackets; + p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 4-b: Compensating differentials of trust in GSS17 ^b

	Expected wallet return by neighbours		Trust in neighbours		Expected wallet return by strangers		Trust in co-workers		Confidence in police	
Coefficient of the log of household income	0.17***	(0.022)	0.17***	(0.022)	0.17***	(0.022)	0.17***	(0.022)	0.17***	(0.022)
Coefficient of trust	0.10***	(0.046)	0.34***	(0.071)	0.20***	(0.050)	0.68***	(0.076)	0.36***	(0.058)
Compensating differential	0.61***	(0.30)	2.03***	(0.47)	1.22***	(0.30)	4.12***	(0.47)	2.18***	(0.47)
95% confidence interval	[0.028, 1.20]		[1.11, 2.94]		[0.63, 1.82]		[3.21, 5.03]		[1.27, 3.09]	

Standard errors in brackets; + p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 4-c: Compensating differentials of trust in ESC2 ^c

	Expected wallet return by neighbours		Trust in management		Expected wallet return by police	
Coefficient of the log of personal income	0.19***	(0.039)	0.19***	(0.039)	0.19***	(0.039)
Coefficient of trust	0.23***	(0.063)	0.19***	(0.025)	0.16+	(0.098)
Compensating differential	1.21***	(0.34)	0.97***	(0.24)	0.84	(0.64)
95% confidence interval	[0.54, 1.88]		[0.50, 1.44]		[-0.41, 2.09]	

Standard errors in brackets; + p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 4-d: Compensating differentials of trust in USBS 2000/01 ^d

	Trust in neighbours		Trust in co-workers		Trust in police	
Coefficient of the log of household income	0.096***	(0.022)	0.096***	(0.022)	0.096***	(0.022)
Coefficient of trust	0.25***	(0.048)	0.093***	(0.011)	0.35***	(0.040)
Compensating differential	2.60***	(0.30)	0.97***	(0.26)	3.64***	(0.26)
95% confidence interval	[2.01, 3.09]		[0.46, 1.48]		[3.13, 4.14]	

Standard errors in brackets; + p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Notes for Table 4

a. The results are generated from the Gallup World Poll 2006 using the Cantril self-anchoring striving scale on a 0 to 10 scale. Compensating differentials of trust are calculated based on model (1) in Table 2.

b. The results are generated from the Canadian GSS17 using life satisfaction on a 0 to 10 scale. Expected wallet return by neighbours and by strangers originally on a 1-3 point scale is converted to 0 to

1.0 range. Trust in neighbours is the answer to the question “how much do you trust people in your neighbourhood?”. It is originally on a 1-5 point scale, but is converted to 0 to 1.0 range. Trust in co-worker which is originally on a 1-5 point scale is standardized with zero mean and a standard deviation of one. Confidence in police which is originally on a 1-4 point scale is also converted to 0 to 1.0 range. Compensating differentials of trust in neighbours are calculated based on model (5) in Table 3. Compensating differentials of other trust measures are calculated based on model (4) in Table 3.

c. The results are calculated based on the Table 2 in Helliwell *et al.* (2009), in which ordered probit models are used to perform regressions. Life satisfaction is on a 1-10 point scale. Trust in management, which is originally on a 1-10 point scale, is standardized with zero mean and a standard deviation of one. Expected wallet return by neighbours and by police, which is a 3 point scale, is standardized with zero mean and a standard deviation of one. The regressions only use data on working population in which the self-employed are excluded. The coefficients of correlation between trust and income are assumed to be zero to simplify the calculation.

d. The results are calculated based on Table 2 in Helliwell *et al.* (2009), in which ordered probit models are used to perform regressions. Happiness is on a 1-4 point scale; trust in co-workers, which is originally on a 1-4 point scale, is standardized with zero mean and a standard deviation of one. Trust in neighbours and trust in police are both on a 0-1 point scale. The regressions only use data on working population in which the self-employed might be included since the US benchmark survey does not provide information on self-employment status. The coefficients of correlation between trust and income are assumed to be zero to simplify the calculation.

Table 5: Trust equations, Canadian GSS17

	Dependent variables					
	General Trust	Trust in co-workers	Trust in neighbours	Trust in strangers	Expected wallet return by neighbours	Expected wallet return by strangers
	(1)	(2)	(3)	(4)	(5)	(6)
Imported trust	0.743*** (0.106)	0.002 (0.065)	0.169** (0.055)	0.183*** (0.054)	-0.081 (0.077)	-0.032 (0.071)
Immigrant	0.074*** (0.015)	-0.014 (0.010)	0.012 (0.007)	-0.007 (0.008)	-0.009 (0.013)	0.003 (0.010)
French as the first language	-0.192*** (0.011)	-0.020** (0.008)	-0.043*** (0.006)	-0.056*** (0.007)	-0.036*** (0.008)	-0.098*** (0.007)
Married or as married	0.027* (0.012)	-0.007 (0.007)	0.039*** (0.007)	-0.003 (0.006)	0.072*** (0.009)	0.018* (0.007)
Separated, divorced or widowed	-0.013 (0.015)	0.006 (0.009)	0.003 (0.007)	-0.020** (0.007)	0.008 (0.010)	-0.001 (0.009)
Age	0.003* (0.001)	0.017*** (0.001)	0.002* (0.001)	0.006*** (0.001)	0.001 (0.001)	0.003*** (0.001)
Age squared divided by 100	-0.001 (0.001)	-0.028*** (0.001)	0.001+ (0.001)	-0.003*** (0.001)	0.002+ (0.001)	-0.001+ (0.001)
Female	-0.020* (0.009)	-0.060*** (0.008)	0.003 (0.004)	-0.026*** (0.004)	-0.015** (0.006)	0.008 (0.005)
High school education	0.038** (0.014)	0.017+ (0.010)	0.008 (0.007)	0.042*** (0.007)	0.019+ (0.011)	0.028*** (0.008)
Started college or university	0.079*** (0.015)	0.044*** (0.009)	0.014* (0.006)	0.072*** (0.006)	0.041*** (0.008)	0.043*** (0.007)
University degree	0.155*** (0.015)	0.081*** (0.009)	0.036*** (0.007)	0.124*** (0.007)	0.078*** (0.009)	0.078*** (0.009)
Religious group membership	0.031** (0.012)	0.004 (0.008)	0.006 (0.005)	0.023*** (0.006)	0.024*** (0.007)	0.025*** (0.007)
Non-religious group membership	0.043*** (0.008)	0.032*** (0.005)	0.004 (0.004)	0.020*** (0.005)	0.018** (0.006)	0.016** (0.005)
Years living in the neighbourhood	0.030* (0.014)	0.051*** (0.009)	0.091*** (0.007)	0.017* (0.007)	0.135*** (0.010)	0.003 (0.009)
Sense of control over things	0.080*** (0.014)	0.034*** (0.010)	0.017* (0.007)	0.047*** (0.008)	0.037** (0.013)	0.049*** (0.009)
Ability to change things in life	0.112*** (0.019)	0.075*** (0.012)	0.029** (0.010)	0.074*** (0.012)	0.030+ (0.018)	0.030* (0.012)
Number of close friends: 1 or 2	0.039 (0.028)	0.015 (0.019)	0.048*** (0.013)	0.018 (0.012)	0.011 (0.017)	0.006 (0.014)
Number of close friends: 3 to 5	0.113*** (0.026)	0.060** (0.022)	0.071*** (0.012)	0.042*** (0.012)	0.044** (0.015)	0.021+ (0.012)
Number of close friends: 6 to 10	0.164*** (0.025)	0.070*** (0.021)	0.086*** (0.013)	0.063*** (0.013)	0.051** (0.016)	0.029* (0.013)
Number of close friends: 11 to 20	0.173*** (0.028)	0.088*** (0.023)	0.099*** (0.014)	0.074*** (0.015)	0.066*** (0.020)	0.037* (0.017)
Number of close friends: over 20	0.173*** (0.035)	0.118*** (0.025)	0.118*** (0.018)	0.055** (0.020)	0.071** (0.024)	0.021 (0.025)
Frequency of seeing close friends	0.002 (0.008)	0.017** (0.005)	0.004 (0.004)	0.005 (0.004)	-0.006 (0.006)	-0.005 (0.005)

Number of close relatives: 1 or 2	0.024 (0.019)	0.028* (0.012)	0.010 (0.011)	0.003 (0.011)	0.008 (0.014)	0.004 (0.014)
Number of close relatives: 3 to 5	0.061** (0.019)	0.058*** (0.012)	0.038*** (0.010)	0.029** (0.010)	0.039** (0.014)	0.021 (0.015)
Number of close relatives: 6 to 10	0.074*** (0.020)	0.054*** (0.012)	0.043*** (0.012)	0.036*** (0.010)	0.039* (0.017)	0.030* (0.014)
Number of close relatives: 11 to 20	0.083*** (0.023)	0.085*** (0.015)	0.043*** (0.012)	0.040*** (0.012)	0.051** (0.017)	0.035* (0.017)
Number of close relatives: over 20	0.055* (0.028)	0.047* (0.018)	0.034+ (0.018)	0.015 (0.015)	0.032 (0.023)	0.018 (0.021)
Frequency of seeing close relatives	-0.002 (0.008)	-0.018*** (0.005)	-0.001 (0.004)	-0.009* (0.004)	0.013* (0.006)	0.011* (0.005)
<i>Variables at census tract level</i>						
Population density	-0.069 (0.130)	0.011 (0.080)	-0.342*** (0.082)	-0.048 (0.076)	-0.736*** (0.130)	-0.150+ (0.082)
Proportion of high school graduates	0.288*** (0.045)	0.024 (0.029)	0.141*** (0.024)	0.146*** (0.025)	0.231*** (0.033)	0.112*** (0.027)
Proportion of people moved in last 5 years	-0.033 (0.043)	0.025 (0.025)	-0.128*** (0.019)	-0.016 (0.019)	-0.247*** (0.030)	-0.045* (0.023)
Median income	-0.006 (0.005)	0.000 (0.002)	0.005* (0.003)	0.002 (0.003)	0.002 (0.006)	0.001 (0.004)
Income diversity	-0.094+ (0.054)	0.047 (0.033)	0.040 (0.026)	-0.080** (0.027)	0.096** (0.037)	-0.011 (0.033)
Herfindahl Index for ethnic diversity	-0.019 (0.015)	-0.002 (0.012)	0.004 (0.008)	0.003 (0.008)	0.011 (0.016)	-0.022 (0.015)
Proportion of visible minorities	-0.092** (0.032)	-0.078*** (0.021)	-0.139*** (0.016)	-0.086*** (0.017)	-0.225*** (0.024)	-0.080*** (0.021)
Sense of belonging to the community	0.077*** (0.016)	0.052* (0.021)	0.133*** (0.011)	0.041*** (0.009)	0.138*** (0.012)	0.034*** (0.010)
Sense of belonging to the province	0.027 (0.018)	0.036** (0.011)	0.023* (0.011)	0.013 (0.009)	0.015 (0.013)	0.025* (0.012)
Sense of belonging to Canada	0.076*** (0.019)	0.013 (0.014)	0.049*** (0.009)	0.030** (0.009)	0.046** (0.015)	0.042*** (0.011)
No data for census tract id	0.059*** (0.007)	0.014** (0.005)	0.045*** (0.004)	0.038*** (0.004)	0.085*** (0.006)	0.044*** (0.005)
Constant	-0.423*** (0.064)	0.079+ (0.041)	0.124*** (0.034)	-0.232*** (0.034)	0.152** (0.047)	-0.092* (0.041)
R-squared	0.129	0.294	0.207	0.135	0.187	0.086
Number of obs.	17174	17404	17007	16997	16987	16641

Standard errors in brackets; + p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Figures

Figure 1: International Shares of Variance
(Gallup World Poll 2006)

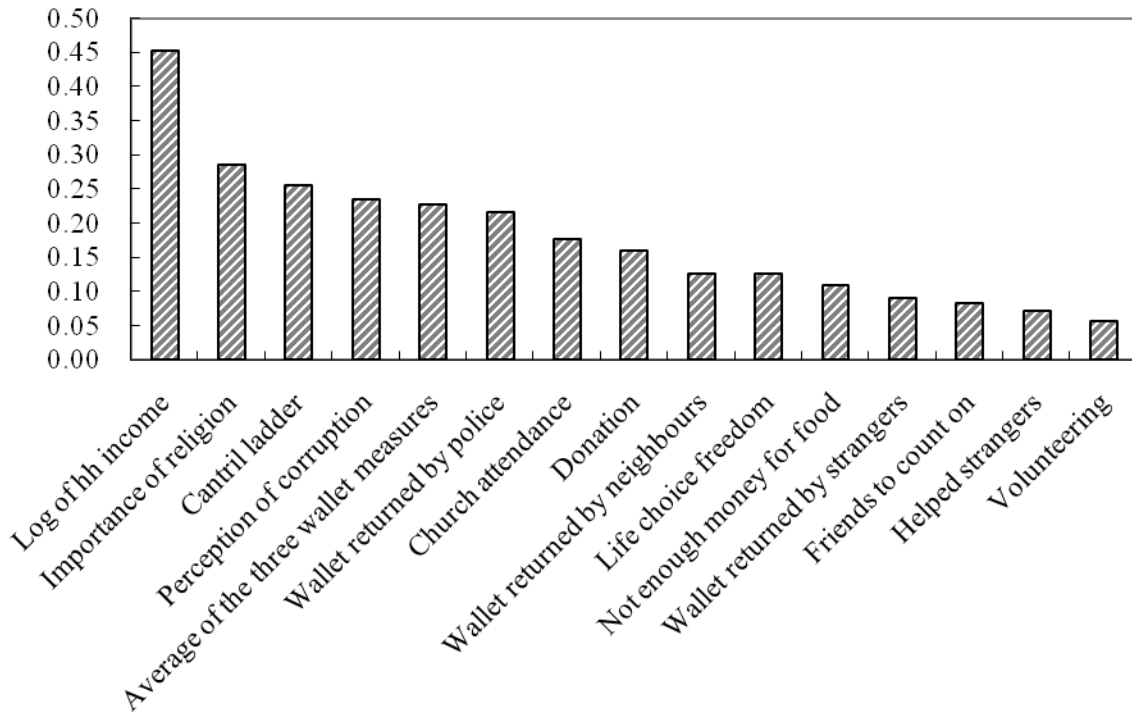
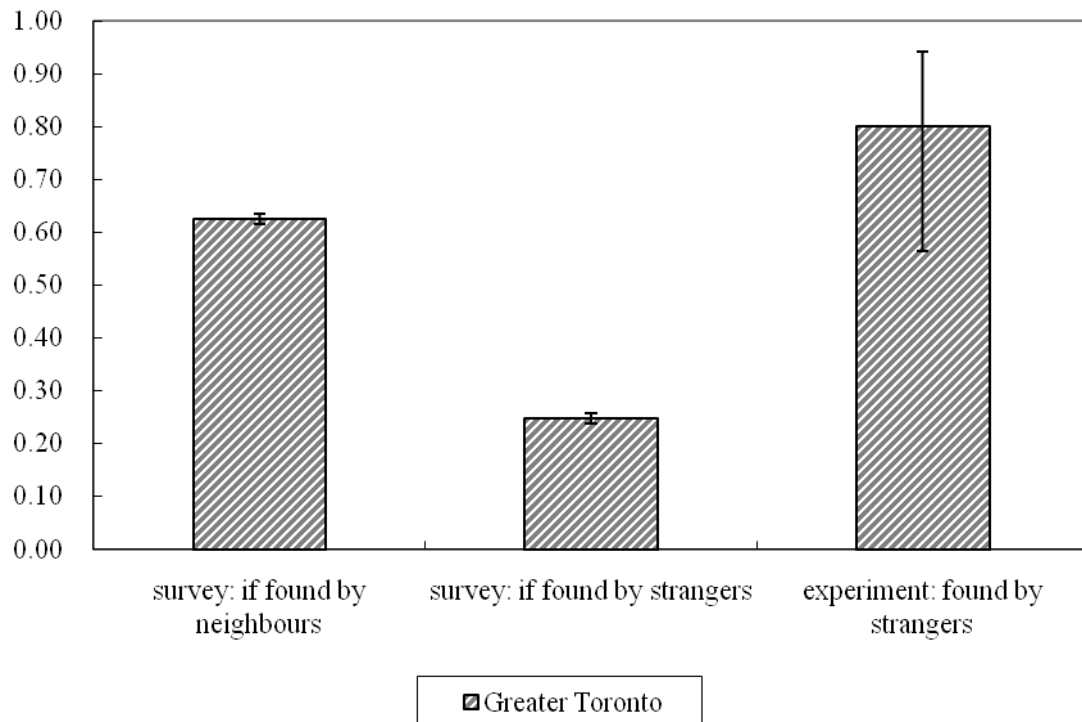


Figure 2: Likelihood of lost wallet being returned



Appendix
Appendix Table 1-a: Summary statistics, Gallup World Poll 2006

Variable	Number of Obs.	Mean	Standard deviation
Cantril Ladder	136955	5.358	2.237
Expected wallet return by neighbours	81065	0.644	0.479
Expected wallet return by police	74903	0.566	0.496
Expected wallet return by strangers	71164	0.166	0.372
Average of the three wallet measures	62306	0.431	0.347
Log of hh income	99584	-2.045	1.944
Married or as married	138666	0.515	0.5
Separated, divorced or widowed	138666	0.049	0.216
Age	138060	38.783	17.03
Age squared divided by 100	138060	17.941	15.288
Female	138640	0.511	0.5
Life choice freedom	123789	0.73	0.444
Friends to count on	132858	0.84	0.367
Not enough money for food	97918	0	0.443
Donation	97198	0.283	0.45
Volunteering	98116	0.224	0.417
Helped strangers	97479	0.432	0.495
Importance of religion in life	129087	0.707	0.455
Church attendance	130658	0.452	0.498
Perception of corruption	102095	0.761	0.383
Net affect	114626	0.400	0.490

Appendix Table 1-b: Detailed descriptions of variables, Gallup World Poll 2006

Variable	Descriptions
Cantril Ladder	Please imagine a ladder with steps numbered from zero at the bottom to ten at the top. Suppose we say that the top of the ladder represents the best possible life for you and the bottom of the ladder represents the worst possible. If the top step is 10 and the bottom step is 0, on which step of the ladder do you feel you personally stand at the present time?
Expected wallet return by neighbours	In the city or area where you live, imagine that you lost your wallet or something holding your identification or address and it was found by someone else. Do you think your wallet (or your valuables) would be returned to you if it were found by neighbours?
Expected wallet return by police	In the city or area where you live, imagine that you lost your wallet or something holding your identification or address and it was found by someone else. Do you think your wallet (or your valuables) would be returned to you if it were found by the police?
Expected wallet return by strangers	In the city or area where you live, imagine that you lost your wallet or something holding your identification or address and it was found by someone else. Do you think your wallet (or your valuables) would be returned to you if it were found by

	strangers?
Married or as married	Dummy variable equal to 1 if respondent is married or as married
Separated, divorced or widowed	Dummy variable equal to 1 if respondent is separated, divorced, or widowed
Life choice freedom	In (county of interview), are you satisfied or dissatisfied with your freedom to choose what you do with your life?
Friends to count on	If you were in trouble, do you have relatives or friends you can count on to help you whenever you need them, or not?
Not enough money for food	Residual of regressing the response to the question "Have there been times in the past twelve months when you did not have enough money to buy food that you or your family needed?" on the log of household income
Donation	Have you in the past month donated money to a charity?
Volunteering	Have you in the past month volunteered your time to an organization?
Helped strangers	Have you in the past month helped a stranger or someone you did not know who needed help?
Importance of religion in life	Is religion an important part of your daily life?
Perception	Have you attended a place of worship or religious service within the last seven days?
Perception of corruption	Average of the following two responses: 1) Is corruption widespread within businesses located in (county of interview), or not? 2) Is corruption widespread throughout the government in (county of interview), or not?
Net affect	Positive affect – negative affect. Positive affect is the average of Gallup wp63-67, and negative affect is the average of wp70, and wp72-75. Questions: Did you smile or laugh a lot yesterday? (wp63) Were you proud of something you did yesterday? (wp64) Did you learn or do something interesting yesterday? (wp65) Did you have good tasting food to eat yesterday? (wp66) Did you experience the following feelings during a lot of the day yesterday? enjoyment (wp67), worry (wp69), sadness (wp70), boredom (wp72), depression (wp73), anger (wp74), shame (wp75).

Appendix Table 2-a: Summary statistics, Canadian GSS17

Variable	Number of obs.	Mean	Standard deviation
Satisfaction with life	24452	7.903	1.642
General trust	23861	0.553	0.497
Expected wallet return by neighbours	23348	0.651	0.361
Expected wallet return by strangers	22641	0.228	0.299
Trust in neighbours	23387	0.682	0.266
Trust in strangers	23323	0.308	0.265
Trust in co-workers	17103	0.711	0.243
Confidence in police	23804	0.734	0.242
Imported trust	22798	0.377	0.052
Immigrant	24568	0.218	0.413
French as the first language	24931	0.216	0.412
Age	24951	43.942	17.940
Age squared divided by 100	24951	22.527	17.353
Female	24951	0.508	0.500
Years living in the neighbourhood	24547	3.915	1.625
High school education	24517	0.142	0.349
Started college or university	24517	0.416	0.493
University degree	24517	0.212	0.409
Sense of control over things	23409	0.603	0.292
Ability to change things in life	23318	0.682	0.244
Number of close friends: 1 or 2	24721	0.235	0.424
Number of close friends: 3 to 5	24721	0.400	0.490
Number of close friends: 6 to 10	24721	0.214	0.410
Number of close friends: 11 to 20	24721	0.067	0.250
Number of close friends: over 20	24721	0.022	0.145
Number of close relatives: 1 or 2	24673	0.238	0.426
Number of close relatives: 3 to 5	24673	0.354	0.478
Number of close relatives: 6 to 10	24673	0.221	0.415
Number of close relatives: 11 to 20	24673	0.087	0.282
Number of close relatives: over 20	24673	0.034	0.182
Frequency of seeing close friends	23415	0.590	0.492
Frequency of seeing close relatives	24867	0.382	0.486
Religious group membership	24728	0.168	0.374
Non-religious group membership	24738	0.578	0.494
<i>Variables at census tract level</i>			
Population density	24368	0.024	0.036
Proportion of high school graduates	24940	0.588	0.130
Proportion of people moved in last 5 years	24474	0.412	0.131
Median income	24951	0.437	1.022
Income diversity	24368	0.271	0.102
Herfindahl Index for ethnic diversity	23001	0.339	0.242
Proportion of visible minorities	24407	0.131	0.182
Sense of belonging to the community	24417	0.601	0.283
Sense of belonging to the province	24313	0.695	0.272
Sense of belonging to Canada	24570	0.784	0.269

Appendix Table 2-b: Detailed descriptions of variables, Canadian GSS17

Variable	Descriptions
Satisfaction with life	Please rate your feelings about certain areas of your life, 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?
General trust	Generally speaking, would you say that most people can be trusted or, that you cannot be too careful in dealing with people? trust=1, careful=0.
Expected wallet return by neighbours	If you lost a wallet or purse that contained two hundred dollars, how likely is it to be returned with the money in it if it was found by someone who lives close by? Scaled max=1.0 in regressions
Expected wallet return by strangers	If you lost a wallet or purse that contained two hundred dollars, how likely is it to be returned with the money in it if it was found by a complete stranger?
Trust in co-workers	Using a scale of 1 to 5 where 1 means "Cannot be trusted at all" and 5 means "Can be trusted a lot", how much do you trust people you work with or go to school with? Scaled max=1.0 in regressions
Not answered 'trust in co-workers' question	Dummy variable equals to 1 if respondents do not answer the questions on trust in co-workers
Trust in neighbours	Using a scale of 1 to 5 where 1 means "Cannot be trusted at all" and 5 means "Can be trusted a lot", how much do you trust people in your neighbourhood? Scaled max=1.0 in regressions
Trust in strangers	Using a scale of 1 to 5 where 1 means "Cannot be trusted at all" and 5 means "Can be trusted a lot", how much do you trust strangers? Scaled max=1.0 in regressions
Confidence in police	How much confidence do you have in the police? Scaled max=1.0 in regressions
Imported trust	Imported Trust (average level of trust in immigrant's country of origin minus corresponding Canadian value)
Immigrant	Dummy variable equals to 1 if respondent is an immigrant
French as the first language	Dummy variable equals to 1 if the first language of respondent is French
Married or as married	Dummy variable equals to 1 if respondent is married or as married
Separated, divorced or widowed	Dummy variable equals to 1 if respondent is separated, divorced, or widowed
Unemployed	Dummy variable equals to 1 if respondent is unemployed
Frequency of seeing close friends	The frequency of seeing close friends in the last month
Frequency of seeing close relatives	The frequency of seeing close relatives in the last month

Religious group membership	Dummy variable equals to 1 if respondent belongs to a religious group
Non-religious group membership	Dummy variable equals to 1 if respondent belongs to a non-religious or non-ethnic group
Sense of belonging to the community	Scaled max=1.0 in regressions
Sense of belonging to the province	Scaled max=1.0 in regressions
Sense of belonging to Canada	Scaled max=1.0 in regressions
