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WELL-BEING AND TRUST IN THE WORKPLACE

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<u>ABSTRACT</u>

This paper summarizes and extends our recent work using life satisfaction regressions to estimate the relative values of financial and non-financial job characteristics. The well-being results show strikingly large values for non-financial job characteristics, especially workplace trust and other measures of the quality of social capital in workplaces. For example, an increase of trust in management that is about one tenth of the scale is equivalent to more than 30% increase in monetary income. We find that these values differ significantly by gender and by union status. We consider the reasons for such large values, and explore their implications for employers, employees, and policy-makers.

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1. Well-being and the Workplace: Setting the Stage

Much of the recent empirical and theoretical analysis of social capital (e.g. Putnam 2000, Helliwell and Putnam 2004) has concentrated on interactions in families and communities, with only limited attention paid to the nature and consequences of social capital in the workplace. Since that earlier research showed the great importance of social capital to subjective well-being, it seemed likely that it would also be worthwhile to collect evidence about social capital in the workplace, given the large fraction of waking hours spent there. Hence we devoted a fresh section of the second wave of the Canadian ESC survey to evaluating life on the job, and Putnam has recently completed a new survey with life in the workplace as its focus.

In two earlier papers (Helliwell and Huang 2009a, Helliwell, Huang and Putnam 2009), we presented results from the second wave (2002~2003) of the Canadian Equality, Security and Community (ESC) survey, along with more limited workplace results based on the larger Canadian General Social Survey (GSS) of 2002, and Robert Putnam's US Social Capital Benchmark survey. In those papers, and in the results reported in this paper, we base our analysis on those who held paid jobs at the time of the survey. There are roughly 2,500, 9,000 and 16,500 employed respondents included in our results for the ESC, GSS and Benchmark samples, respectively. Appendix 1 shows the sample means and standard deviations for the key variables used.

The earlier papers provided estimates of the values of various aspects of life on the job, measured as 'compensating differentials'. The methodology is described fully in Helliwell and Huang (2009a). The basic idea is fairly simple. Measures of life satisfaction (or of happiness in the case of the Benchmark survey) are used as dependent variables, with the independent variables including those variables thought to have important implications for life satisfaction. If the influence of income on life satisfaction is significant, then the income-equivalent values of other significant determinants can be measured as the size of the change in income that would have the same well-being effect as a given change in the other variable of interest.

The estimates of compensating differentials for non-financial job characteristics, and especially of workplace trust, are strikingly large. For example, results from the ESC survey suggest that having a job in a workplace where trust in management is ranked 1 point higher on a 10-point scale has the equivalent effect on life satisfaction as a 36% change in income (Helliwell, Huang and Putnam 2009). We also explored some reasons why both workers and managements might not have been sufficiently aware of these effects to induce them to pay more effective attention to building and maintaining workplace trust.

In that paper we also attempted to explain some of the possible determinants of workplace trust. One of the more striking findings was that union workers tend to rate trust in management in their workplaces lower than do non-union workers, by 1.2 points on a ten-point scale (t=12.5). However, despite the fact that workplace trust is very important for life satisfaction, and trust in management (although not trust in co-workers) is substantially lower for union workers, union workers do not, on average, have lower levels of life satisfaction.

In this paper we extend our earlier work by assessing how the results differ by union stats and by gender. First we attempt to explain why union workers are as satisfied with life as non-union workers, despite working in environments where they judge management to be less trustworthy. Second, we look for, and find, interesting gender differences in the ways in which male and female workers choose and evaluate their workplaces. We were inspired to do this by Nicole Fortin's recent analysis (Fortin 2005, based on World Values Survey data) suggesting that some important part of the male-female earning gap might be based on deliberate choices by female workers favouring jobs with lower income and better working conditions. If her conjectures are more generally applicable, they would suggest that female workers attach higher life-satisfaction value to non-financial job characteristics than do males, and that they might therefore take jobs with higher values of trust and other non-financial job characteristics, but with lower earnings. In the ESC data there is at least some initial support for this interpretation, as female

employees rate trust in management at their workplaces higher than do men, with the gender difference being the same whether the employees are union members or not. This is not simply due to women being more trusting than men, as there is no significant gender difference in social trust, trust in police, or trust in neighbours[1]. If we find significant male/female differences in relative preferences for income and non-financial job characteristics, then this might help to explain, following Fortin's conjectures, some part of the remaining earnings gap between genders.

2. Using Life Satisfaction Data to Value Workplace Social Capital

We are going to use 'compensating differentials' to measure the values of workplace social capital. There have been many previous attempts in the literature to value non-financial aspects of jobs using wages or incomes as the dependent variable. Many are based on cross-sectional studies using data at the level of individual workers. There are econometric problems in this approach caused by the problem of unobservable ability.

Consider an estimation equation with earnings on the left-hand side as the dependent variable:

(1) $\ln(y_i) = \alpha - \beta X_i + \gamma Z_i + \theta Z u_i + \varepsilon_i$

where y_i is the earnings level for worker i, X_i is a vector of job characteristics, applicable to worker i's job, with compensating differentials estimated by the coefficient vector β. The Z_i are measured characteristics of worker i. The error term has two parts. ε_i is the idiosyncratic term related to the skill level of worker i, and $Z u_i$ are other unmeasured characteristics of the worker, the job, or the market environment in which the wage is being paid.

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[1] If the 10-point trust-in-management responses are regressed on gender and union status, the coefficients are -1.21 for union membership and -.22 for males. Repeating the same regression for general social trust shows social trust slightly higher for union members (+.035, on a 0 to 1 scale, t=1.7), but the same for males and females. There are no gender or union differences to the ESC answers to questions asking respondents to estimate the likelihood of their lost wallets being returned if found, alternatively, by a neighbour or by a police officer.

We can start from a worker's theoretical optimization problem and show that the unobserved ability affects both the earnings of the worker and the characteristics of the chosen job[2]. The worker solves:

$$Max_{(y_i, X_i)}U(y_i, X_i)$$
$$s.t. \ \omega_i = y_i + \beta X_i$$

where $U(.,.)$ is the utility function. The two arguments are income and non-financial job attributes in that order. Positive elements in the vector of job attributes X_i enhance utility, and vice versa. We assume that jobs differ in their characteristics and that employees can choose between a more interesting or engaging job with a lower wage and a less pleasant environment with a higher wage. The labour market is presumed to offer potential workers many different packages, with prices of job attributes as denoted by the vector β. The budget constraint requires that the money wage and the cost (or benefit if negative) of the chosen job attributes should sum to the total earning potential of the worker, denoted as ω_i.

The solution to this maximization has to satisfy the following three-equation system including the first order condition for chosen wage, the first order condition for the chosen job attributes, and the budget constraint, respectively written:

(2) $\partial U(y_i, X_i)/\partial y_i = \lambda_i$
(3) $\partial U(y_i, X_i)/\partial X_i = \lambda_i \beta$
       $\omega_i = y_i + \beta X_i$

where λ_i is the Lagrangian multiplier.

A solution of this system gives optimal choice of y_i and X_i, both of which are functions of the compensating differentials β, and the unobservable skill level ω_i

$$y_i = y_i(\omega_i, \beta); \quad with \ \partial y_i/\partial \omega_i > 0; \ \partial y_i/\partial \beta > 0$$

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[2]   A similar way of showing the problem is familiar. See, for example, Hwang, Reed and Hubbard (1992).

$X_i = X_i(\omega_i, \beta)$;   with $\partial X_i/\partial \omega_i > 0$; $\partial X_i/\partial \beta < 0$

By substituting the optimal choices back into the budget constraint and moving the wage to the left hand side, we have the relation between wage and job attributes in the equilibrium that is underlying equation (1):

$y_i(\omega_i, \beta) = -\beta X_i(\omega_i, \beta) + \omega_i$

With cross-sectional data, the unobservable earning potential ω_i becomes part of the error term, thus leaving the error term correlated with both the dependent wage variable and the job characteristics used as independent variables. The estimation of β will thus be biased downward. For instance, suppose that job safety is included among the X variables. With the usual theoretical presumption that safety is a normal good, workers possessing higher than average abilities use their extra bargaining power to obtain jobs that are both safer and more highly paid. In the absence of a variable measuring ability, this behaviour would lead to an upward bias on the coefficient measuring the effects of education (assuming ability and education to be positive correlated) and a bias towards zero on the coefficients of variables measuring job safety. In the absence of variables measuring worker education and training, the downward bias in the estimation of the compensating variation for safety would probably be even greater.

Data from one of the surveys used in this paper can be used to illustrate the reality of this problem, and show also that attempts to remove the bias in the estimation of compensating differentials by allowing for the effects of education on income are likely to be insufficient. In the Canadian Equality, Security and Community (ESC) survey, for example, working respondents are asked to measure the extent to which their jobs possess five job characteristics and one workplace characteristic that are presumed (and subsequently found) to have a positive influence on job satisfaction, independent of the level of income. Each respondent is asked whether their job: allows them to make a lot of decisions on their own, requires a high level of skill, has a variety of tasks, provides enough time to get the job done, and is free of conflicting demands. The answers are

given on a four-point scale, converted to a 0 to 1 scale for the analysis presented below. Respondents are also asked, this time on a scale of 1 to 10, to rate the level of trust that workers have in management at their workplace. Of these six factors, three have positive correlations with income (decision scope, skill and variety), while the other three have negative correlations. This pattern holds whether the correlations with income are measured individually or jointly, and occur whether or not the substantial effects of education on income are allowed for in the way depicted by equation 1[3].

The econometric difficulties posed by using wage equations to identify compensating differentials suggest that it might be more promising to use subjective well-being data as a direct measure of utility, thereby permitting compensating differentials to be estimated as ratios of coefficients estimating the well-being effects of income and job characteristics. We do this by combining equations (2) and (3), the two first-order conditions of the worker's maximization problem. Noting that the compensating differentials, β, are simply the ratios of the marginal utilities of job attributes over the marginal utility of income, i.e.,

$$\beta = [\partial U(y_i, X_i)/\partial X_i]/[\partial U(y_i, X_i)/\partial y_i]$$

Easy as it sounds, this approach will not be available unless utility is measured in a meaningful way so that the marginal contributions of income and job characteristics can be estimated. This is precisely where our dataset fits in. Each of the three surveys we use includes a question that asks respondents to report their satisfaction with life. We suggest that this measure of life satisfaction, subject to some issues we shall deal with later, can be used as a direct measure of utility. The measurement of utility permits the estimation of marginal utilities, and hence of compensating differentials. This approach avoids the difficulties posed by unobserved skills, since theoretically all utility-maximizing

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[3]   If a version of equation 1 is estimated using all six job characteristics and three education level variables, the sign patterns are as described in the text. Of the 'correctly' (negatively) signed job characteristics, "free of conflicting demands" is insignificant. See the Appendix of Helliwell and Huang (2009a) for details.

individuals, of whatever level of ability, will set the ratio of marginal utilities to the prevailing market price.

More precisely, our proposed approach is to estimate the marginal contributions of job characteristics and income to life satisfaction, and to calculate the compensating differentials directly from these estimated coefficients, as ratios of the job characteristics' coefficients to the coefficient on the (log of) income. To the extent that jobs are actually available with the characteristics in question, these ratios reflect the prevailing market prices of job attributes, usually described as compensating differentials. Essentially the same approach has been applied by Van Praag and Baarsma (2005) to estimate compensating differentials for aircraft noise in the neighbourhoods surrounding Amsterdam Airport, and by Frey and Stutzer (2004) to value commuting time.

In its general form, the proposed strategy is described by

$LS_i = \delta \Phi_y(y_i) + \mu \Phi_x(X_i) + \gamma Z_i + \varepsilon_i$

$\beta = \mu / \delta$

Where LS is the mnemonic for life satisfaction, $\Phi_y(y)$ is the functional form on income, $\Phi_x(X)$ is the functional form for job attributes, and Z_i are all other controls. These functional forms accommodate a concave utility. In the case of income, we measure it in its log form instead of its level to reflect standard economic assumptions and many empirical results suggesting that less affluent agents derive greater utility from extra income. Therefore $\Phi_y(y)=\log(y)$. For job attributes we adopt a simplistic view that their per unit contribution to workers is the same regardless of income or level of X, so that $\Phi_x(X_i)= X_i$. Finally we use Z_i to control for many observed heterogeneities across agents, including, in some tests, personality differences.

We take into account the functional form in expressing compensating differentials. For instance, in our empirically preferred case where income is in log form and X is in linear form, β will be the log change in income (we convert to percentage changes in our key tables of results) that has for the average employee the same life satisfaction effect as a change in the non-financial job characteristic X.

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3. Data and Empirical Implementation

Our three survey sources include the second wave (2002~2003) of the SSHRC-supported Equality, Security, and Community survey (ESC hereafter, and described in more detail in Soroka et al 2006) the Statistics Canada 2003 General Social Survey (GSS) and the 2001 US Social Capital Benchmark Survey. The surveys differ in their sample size and the nature and number of questions asked. For the results reported in this paper, we generally restrict our analysis to the working population, roughly 2500 for the second wave of the ESC, 9000 for the GSS, and 13,000 for the US Benchmark. The same life satisfaction question is asked in both Canadian surveys: "In general, how satisfied are you with your life as a whole these days, on a scale of 1 to 10". The Benchmark survey asks about the respondent's happiness, on a 4-point scale. For the survey-ordered probit regressions we use in this paper, this difference in scales has no effect on the ratios of coefficients, and it is these ratios that provide the raw material for our calculation of compensating differentials. Life satisfaction questions tend to elicit answers that are more reflective of life circumstances, and less reflective of ephemeral events, than do happiness questions. However, as is shown in Helliwell and Putnam (2004), where World Values Survey answers to both questions were compared, the same broad pattern of results appears, thus enabling us in this paper to compare at least roughly the US and Canadian effects of workplace trust.

Equation (4) is designed to estimate compensating differentials for specific job characteristics.

(4) $LS_i = \alpha + \delta_l \ln(y_i) + \mu X_i + \gamma Z_i + \theta Z u_i + \varepsilon_i$

LS_i is life satisfaction (or happiness in the case of the US Benchmark Survey) for respondent i, measured on a scale of 1 to 10, y_i is the level of income of the respondent's household (personal income in ESC), and the other variables are as in equation (1), except that the coefficients now measure their impact on life satisfaction rather than on wages, and the variable set is expanded to include all other determinants of life satisfaction. When we use equation (4) to estimate the value of job characteristics, we will do so by taking the ratio of a coefficient on one of the components of the job

characteristic vector X to δ_1 , the coefficient on log income. This matches the functional form assumptions implicit in most previous attempts to evaluate job characteristics using wage equations. It presumes that for each worker the monetary value of a change in some job characteristic is measured as a fraction of his or her income, which in turn implies that higher-income households are prepared to give up more dollars to obtain a higher level of non-financial job satisfaction. We report in Helliwell and Huang (2009a) on the fit and implications of alternative functional forms, finding that this simple form performs well against more complex alternatives. In any event, all of the versions we have considered give us similar basic results.

We try to control for as many as possible of the direct determinants of utility, so that our estimates of the effects of income and workplace characteristics should be relatively accurate, and hence useful for constructing estimates of the income-equivalent values of various elements of workplace social capital. These control variables include gender, age, and marital status, as well as level of education, immigration and ethnic information. They also include a measure of self perceived health status (scale 1 to 5, with 5 representing the best of health), which we believe not only control for physical health, but also psychological health and some unobserved personality differences. Furthermore, we have information from all three surveys about the respondent's frequency of contacts with family members outside household, with friends, and with neighbours, and also the number of memberships (or extent of activity) in voluntary organizations. These measures are all scaled between zero and one, although they are not defined in the same way across all three surveys, so their coefficients are not strictly comparable across surveys. But they all serve the same purpose, which is to control for factors that are likely to affect life satisfaction, thereby making the coefficients on income and jobs as comparable as possible across the three surveys[4]. We use survey-ordered probit estimation with errors presumed to be clustered at the level of the census tract to allow for omitted community-level determinants of life satisfaction. Although the probit and linear forms give similar results for compensating differentials, the probit form is perhaps

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[4]   For more information about these controls, and how they influence life satisfaction, see Helliwell (2003, 2006) and Helliwell and Putnam (2004).

more convincing, since it permits us to drop the cardinality assumption required for the linear form.

The ESC, GSS and Benchmark surveys all contain some measure or measures of workplace trust. The ESC asks about the extent to which management can be trusted in the respondent's workplace, while the GSS and Benchmark surveys ask to what extent there is trust among colleagues. Figure 1 shows a cross-tabulation of trust in management and life satisfaction for all employed respondents to the second wave of the ESC survey. The figure shows both that trust in management is generally high among the ESC respondents (6.7 on a ten-point scale- see Appendix Table 1) and that life satisfaction is significantly higher among those who work where they rank management trustworthiness highly. For example, the roughly one-quarter of paid workers who rate trust in management at 9 or 10 on a ten point scale report life satisfaction of 8.3 on a ten-point scale, compared to an average of 7.5 for the slightly larger number of workers who rate trust in management at 5 or below.

4. Basic Results

The basic well-being equations are shown in Table 1, with the ESC in column 1, the GSS in column 2, and the US Benchmark in column 3. The corresponding ESC estimates of compensating differentials for workplace trust are shown in the first column of Table 3. Although there is an extensive literature on the determinants of job satisfaction, there has been less study of the role of workplace trust and social capital as contributors to either job or life satisfaction. In a parallel way, most studies of social capital and its effects have concentrated on the influence of family, friends, and community groups, with much less attention thus far paid to either the causes or the consequences of workplace social capital (Halpern 2005). Given the large fraction of waking hours spent in the workplace, it should perhaps be expected that workplace social capital might be strongly linked to life satisfaction.

The social capital literature (see Halpern 2005 for a recent review) gives a central place to trust, with high levels of trust being positively related to other measures of social

capital (and sometimes being used themselves as either proxy or direct measures of social capital), with causation likely to flow both ways (Putnam 2000). The well-being equations in this paper suggest that several different sorts of trust have direct effects on well-being. The fact that a variety of domain-specific trust measures have even greater well-being effects than do responses to the canonical general trust question gives us confidence that the large effects of workplace trust on well-being are not simply due to influence of congenital optimism on both trust and reported well-being.

The estimated compensating differentials for workplace trust shown in the first column of Table 3 are large in magnitude and in statistical significance. For the whole sample of workers, a change in trust in management of just one-third of a standard deviation (about 0.7 points on the 10-point scale, covering about 10% of the sample) has the same life satisfaction effect as a 31% change in income (with a t-value of 4.5). The coefficients from the GSS and the US Benchmark survey, shown in Table 1, imply compensating differentials for trust in co-workers in the Benchmark that are very similar to those for trust in management in the ESC, while the effects are even larger for the GSS, driven by a significantly smaller income effect in the GSS than in the ESC.

In the second column of Table 2, we augment the basic ESC life satisfaction equation by including other aspects of workplace life, and in Helliwell and Huang (2009a), we estimated the compensating differential for these factors. As can be seen from Table 2, jobs that require skill, have variety, have sufficient time available for completion, and are free of conflicting demands are associated with significantly higher life satisfaction, while those that involve a lot of decision-making do not increase life satisfaction. As we show in Helliwell and Huang (2009a) jobs that involve a lot of decision-making are associated with higher levels of job satisfaction, but these are lost in the conversion to life as a whole, presumably because of offsetting stresses on the home front.

In the following sections of this paper, we extend our previous work by analyzing the relation between trust in management and life satisfaction disaggregated by the union

status and gender, since these were two dimensions on which we found significant differences in the observed pattern of relations between workplace trust and well-being.

5. Workplace Trust and Union Status

Figure 2 shows how trust in management differs as between union and non-union workers in the ESC sample, while Appendix Table 1 shows the means and standard deviations of the data. There are two striking features apparent in the raw data. First, as shown in the Appendix Table, the one-third of the sample respondents who are union members (reflecting the current national average unionization rate) rate trust in management, on average, at just under 6.0 on a ten-point scale, compared to 7.1 for the non-union workers. This is not because union workers are generally either an unhappy or a non-trusting lot, as their average life satisfaction is just as high as that of non-union workers, while their general social trust, trust in neighbours and trust in police are equal to or higher than those of non-union workers.

Second, the increase in well-being associated with being in a job where trust in management is rated more highly is significantly greater for non-union than for union workers, as shown by the steeper slope apparent in Figure 2. In addition, as would be suggested by the previous paragraph, when the respondents are sorted according to their answers to the question about trust in management, union workers are on average more satisfied with their lives than are non-union workers. This follows from the facts already noted, that the two groups of workers are on average about equally happy, while the union workers rate trust in management lower than do non-union workers.

There are several possible reasons that might be contributing to these patterns. First, low-trust workplaces are likely to have more dissatisfied workers, and to provide a climate more open to establishment of a bargaining unit. Second, the climate of management-employee relations may be exacerbated in a union environment, since at least some of the company and union representatives have the maintenance of adversarial relations as an essential part of their jobs. To the extent this is true, one might expect to find that the

lower trust in management found among union workers is not matched by low trust among colleagues. Although we do not have surveys asking about both trust in management and trust among colleagues, we do find that in the US Benchmark survey there is no difference between union and non-union workers in the extent to which they feel trust in their fellow workers. This suggests that there is a special link between trust in management and unionization, with the correlation perhaps reflecting causation running in both directions.

Third, the fact that union workers more frequently rate trust in management lower than non-union workers, but are no less happy on average, probably reflects some element of sorting, with those less bothered by a low trust working environment taking union jobs with their related combination of higher pay and lower trust in management.

Fourth, the fact that union workers are happier than non-union workers in environments where trust in management is low (see figure 2, especially the first column) may also mean that unions are doing their jobs, in the sense that they have negotiated contracts and grievance procedures to protect their members against at least some of the risks of working where management is not trusted by workers.

Some combination of the third and fourth reasons probably lies behind our finding that the estimated compensating differentials for trust in management are twice as high for non-union as they are for union workers, as shown in the right-hand columns of Table 3.

6. Gender Differences: Trust Matters More for Females
The difference between union and non-union workers is to a lesser extent mirrored by that between male and female workers, with females, like non-union workers, being more likely to be working in jobs where trust in management is rated higher, and apparently gaining more (in terms of higher life satisfaction) from working in a high-trust environment. This is not simply the same phenomenon with a different name, because in the ESC sample, and in the Canadian economy as a whole, the percent of females working in union jobs is almost exactly the same as for males. The lack of interaction

effects suggests that the two situations are sufficiently independent to be analyzed separately. The magnitudes of the male/female and the union/non-union differences in the estimated values attached to trust in management are strikingly similar. Table 3 shows female workers to attach income-equivalent life satisfaction values for trust in management that are twice as high as for male workers. This is exactly as was found when we compared non-union and union workers. In both cases the differences in compensating differentials result from females, and non-union workers, attaching a lower value to income and a higher value to trust in management than do male or union workers. For women, as compared to non-union workers, more of the effect flows through the income coefficients, and less through trust in management, but these differences are too small to be significant.

As noted in the first section of the paper, Nicole Fortin (2005) has already found some evidence in OECD countries that women are more likely to value jobs that have lower pay and more flexible working conditions. This appears to be entirely consistent with our findings, as workplaces where trust in management is high are workplaces where flexible working arrangements are more likely to be in place and working smoothly. Informal interviews with female workers in high trust jobs, many of which offered lower pay but higher trust than previous jobs, showed that a large part of the value of the high-trust environment lay in the ease with which flexible working arrangements, including several features of child-rearing, could be obtained without fear or hassle. It is also possible that there are more basic gender differences in the values attached to working in jobs with high levels of trust. Our current results do not allow us to distinguish the relative importance of gender-based personality differences and gender-based differences in life circumstances.

In the meantime, our results do suggest that at least some part of the male/female gap in money wages is offset for females by working in high-trust jobs. Thus we find, as shown in Appendix 1, that although female workers in our sample earn less per hour worked, they have equal or greater satisfaction with their jobs and their lives, and are in jobs where the trustworthiness of management is rated more highly. It is possible to use our

coefficient estimates to calculate what fraction of the hourly earnings difference between males and females might be compensated for by the difference in trust in management. Using the compensating differentials in Table 3, as seen from a female perspective, the higher average assessments of trust in management in the jobs held by females have a life satisfaction effect almost two-fifths as large as those attributable to the higher average hourly earnings of males compared to females in our ESC sample[5].

7. Conclusion

Our estimates in Helliwell and Huang (2009a) were the first we know of to provide income-equivalent values for workplace trust. The estimated values of trust in the workplace are very large, and remain so even when we make a number of adjustments designed to remove risks of over-estimation. Our workplace trust results are independently estimated from two Canadian and one US survey using different samples and different question wordings. That all three surveys should show such consistently large effects convinces us of the robustness of our results. In this paper we have built on subsequent extensions by Helliwell, Huang and Putnam (2009) and Helliwell and Huang (2009b) to disaggregate and report results by gender and union status.

There is much more to be done, in collecting fresh samples of data and especially in developing survey sources that will provide data linking individual subjective assessments of workplace quality and life satisfaction with workplace-based information about the structure of specific places of employment. We think that the strength and consistency of our results to date is sufficient to support more research in these directions. Perhaps it may already be enough to convince workers and managers to pay

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[5] In the fourth column of Table 2, which has the regression result for female workers, the coefficient on the standardized trust in management is 1.31 times of the coefficient on log of personal income. This implies that we can multiply the difference in standardized trust by 1.31 to turn it into income-equivalent units. The gender difference in the average assessment of trust in management is 0.13, with females being higher. The difference amounts to 0.057 standardized units. The corresponding income-equivalent value is therefore 0.057*1.31=0.075. The gender difference in personal income per hour of work is 0.19, with females being lower. Therefore the difference in workplace trust contributes almost two-fifths (0.075/0.19=0.39) of the gender difference in hourly earnings.

more attention to workplace trust[6], since it seems central to life satisfaction, and may otherwise be inadvertently risked by workplace changes undertaken for other reasons.

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[6] There has been increasing interest in the topic within the human resources research community. For example, a 2003 special issue of the **International Journal of Human Resource Management** was devoted to workplace trust. See Ziffane and Connell (2003).For a survey of some of the related research in psychology, see Kramer (1999).

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Figure-1: Life Satisfaction at different levels of trust in management; Paid workers in the Canadian 2nd-wave ESC
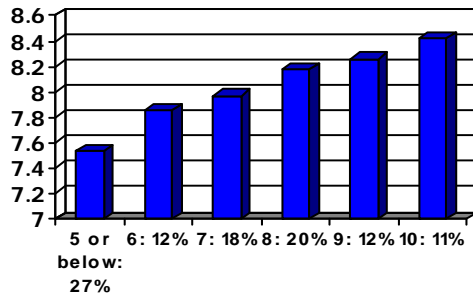
Figure 2: Life Satisfaction at different levels of trust in management, by union status, from the Canadian 2nd-wave ESC
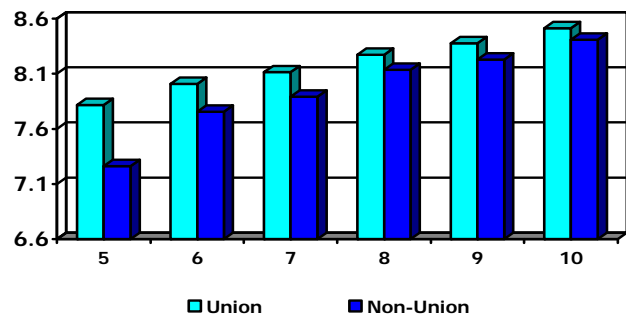
Figure 3: Life Satisfaction at different levels of trust in management, by gender, from the Canadian 2nd wave ESC
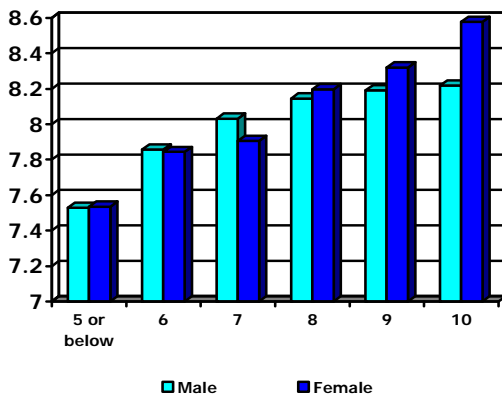
Figure 4:   Union members are less trusting only in management, evidence from ESC (first 4 double columns) and GSS
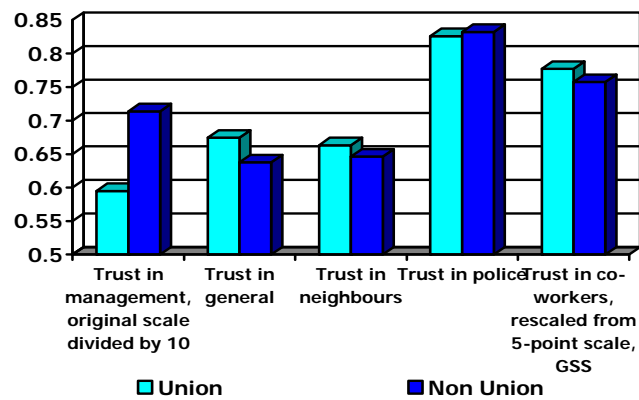
Figure 5: Percentage distribution of trust in management, Union and non-union workers Canadian 2nd-wave ESC
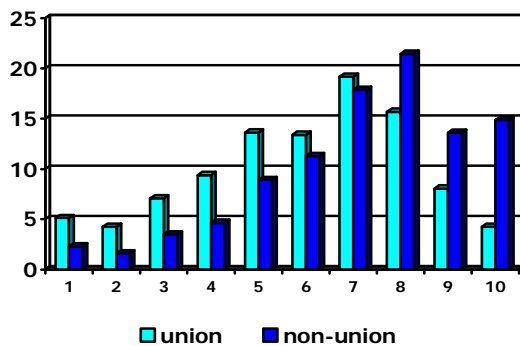
Figure 6: Percentage distribution of trust in management, male & female paid workers Canadian 2nd-wave ESC
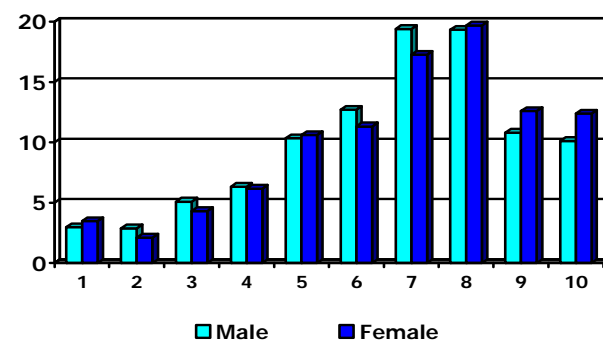
Footnote: In the first three figures, the vertical axis is the average life satisfaction, the horizontal axis is the scale of trust in management.

The horizontal axis of Figure 1 also indicates the percentage of workers in each of the categories in the second wave ESC survey

Table 1: Well-being effects of income and workplace trust, from three different surveys

Regression method: Survey Ordered Probit			
Survey Survey year	Canadian ESC-2, year 2002-03	Canadian GSS-17 year 2003	US Benchmark Survey year 2000/01
Sample	Paid workers	working population	working population
Dependent Variable	Life satisfaction; 1-10 point scale	Life satisfaction; 1-10 point scale	Happiness; 1-4 point scale
Log of personal income in ESC, log of household income in GSS and Benchmark	0.199 [0.041]**	0.099 [0.029]**	0.096 [0.022]**
Trust in management, or trust in co-workers in GSS and Benchmark; Standardized score,	0.185 [0.025]**	0.179 [0.017]**	0.098 [0.012]**
Self-perceived health status, scaled 1 to 5	0.284 [0.029]**	0.386 [0.016]**	0.354 [0.012]**
male	-0.134 [0.039]**	-0.081 [0.026]**	-0.119 [0.025]**
Age Group: 25~34	-0.277 [0.100]**	-0.219 [0.058]**	-0.029 [0.043]
Age Group: 35~44	-0.255 [0.107]*	-0.381 [0.060]**	-0.059 [0.038]
Age Group: 45~54	-0.238 [0.110]*	-0.413 [0.065]**	-0.064 [0.050]
Age Group: 55~64	0.024 [0.121]	-0.31 [0.069]**	0.024 [0.045]
Age Group: 65 up	0.12 [0.271]	-0.017 [0.185]	0.07 [0.082]
Marital Status: Married	0.387 [0.066]**	0.259 [0.038]**	0.264 [0.037]**
Marital Status: As Married	0.376 [0.084]**	0.237 [0.044]**	0.128 [0.049]*
Marital Status: Divorced	-0.176 [0.102]	-0.28 [0.066]**	-0.043 [0.039]
Marital Status: Separated	-0.216 [0.115]	-0.105 [0.056]	-0.226 [0.066]**
Marital Status: Widowed	-0.156 [0.200]	-0.227 [0.124]	-0.057 [0.071]
Education: High school	-0.123 [0.096]	-0.283 [0.061]**	0.115 [0.048]*
Education: Between	-0.114 [0.085]	-0.262 [0.054]**	0.119 [0.052]*
Education: With University Degree	-0.159 [0.090]	-0.378 [0.060]**	0.037 [0.053]
Contacts with family member outside household	0.154 [0.072]*	0.232 [0.045]**	0.161 [0.032]**
Contacts with friends	0.425 [0.086]**	0.221 [0.056]**	0.111 [0.010]**
Contacts with neighbours	0.09 [0.074]	0.067 [0.047]	0.153 [0.048]**
Number of memberships or extent of activity	0.007 [0.013]	0.021 [0.033]	0.284 [0.066]**
Trust in general	0.112 [0.048]*	-0.076 [0.031]*	0.175 [0.022]**
trust in neighbours	0.221	0.243	0.25

	[0.064]**	[0.069]**	[0.048]**
Trust or confidence in police	0.168	0.342	0.349
	[0.099]	[0.065]**	[0.040]**
Importance of religion	0.162	0.189	0.2
	[0.088]	[0.051]**	[0.053]**
Frequency of attending religious services	-0.046	-0.066	0.168
	[0.100]	[0.056]	[0.034]**
cut1:Constant	1.203	-0.448	0.537
	[0.377]**	[0.330]	[0.221]*
cut2:Constant	1.371	-0.128	1.592
	[0.374]**	[0.317]	[0.231]**
cut3:Constant	1.516	0.219	3.942
	[0.376]**	[0.309]	[0.226]**
cut4:Constant	1.793	0.461	13293
	[0.370]**	[0.311]	
cut5:Constant	2.258	1.105	
	[0.373]**	[0.312]**	
cut6:Constant	2.59	1.543	
	[0.378]**	[0.312]**	
cut7:Constant	3.304	2.357	
	[0.378]**	[0.314]**	
cut8:Constant	4.223	3.376	
	[0.381]**	[0.315]**	
cut9:Constant	4.821	4.144	
	[0.380]**	[0.317]**	
Observations	2480	8794	

Standard errors in brackets

* significant at 5%; ** significant at 1%

Note 1: Self-employed is excluded in the two Canadian surveys.
    US benchmark survey does not provide information on self-employment status. Therefore the
    sample may include self-employed.

Note 2: Appendix Table 1 has the descriptive statistics.

Table 2: Well-being models in ESC-2, by population groups
Regression method: Survey Ordered Probit

Survey	Canadian ESC-2, year 2002-3					
Sample	Paid workers					
Dependent Variable	Life satisfaction; 1-10 point scale					
Sub-sample	Whole sample		Male	Female	Union	Non-Union
Special note	with other job attributes on RHS					
Log of personal income	0.199	0.158	0.238	0.174	0.22	0.185
	[0.041]**	[0.042]**	[0.055]**	[0.059]**	[0.073]**	[0.046]**
Trust in management	0.185	0.16	0.152	0.217	0.134	0.241
Standardized score,	[0.025]**	[0.026]**	[0.036]**	[0.031]**	[0.036]**	[0.034]**
Self-perceived health status	0.284	0.282	0.292	0.271	0.283	0.283
Scaled 1 to 5	[0.029]**	[0.029]**	[0.044]**	[0.039]**	[0.054]**	[0.034]**
male	-0.134	-0.138			-0.104	-0.139
	[0.039]**	[0.039]**			[0.074]	[0.050]**
Age Group: 25~34	-0.277	-0.266	-0.473	-0.071	-0.609	-0.211
	[0.100]**	[0.099]**	[0.134]**	[0.138]	[0.236]*	[0.113]
Age Group: 35~44	-0.255	-0.243	-0.363	-0.133	-0.62	-0.189
	[0.107]*	[0.106]*	[0.140]*	[0.151]	[0.238]**	[0.123]
Age Group: 45~54	-0.238	-0.229	-0.423	-0.057	-0.531	-0.233
	[0.110]*	[0.111]*	[0.152]**	[0.154]	[0.248]*	[0.130]
Age Group: 55~64	0.024	0.022	-0.048	0.118	-0.168	-0.029
	[0.121]	[0.120]	[0.174]	[0.181]	[0.273]	[0.138]
Age Group: 65 up	0.12	0.159	-0.148	0.341	0.148	0.108
	[0.271]	[0.278]	[0.466]	[0.327]	[0.545]	[0.314]
Marital Status: Married	0.387	0.377	0.304	0.477	0.427	0.378
	[0.066]**	[0.066]**	[0.086]**	[0.093]**	[0.110]**	[0.081]**
Marital Status: As Married	0.376	0.36	0.429	0.334	0.642	0.234
	[0.084]**	[0.086]**	[0.119]**	[0.112]**	[0.135]**	[0.109]*
Marital Status: Divorced	-0.176	-0.179	-0.233	-0.099	-0.238	-0.119
	[0.102]	[0.102]	[0.141]	[0.141]	[0.164]	[0.123]
Marital Status: Separated	-0.216	-0.219	-0.137	-0.226	-0.16	-0.254
	[0.115]	[0.120]	[0.177]	[0.153]	[0.213]	[0.127]*
Marital Status: Widowed	-0.156	-0.179	-0.193	-0.126	-0.01	-0.225
	[0.200]	[0.197]	[0.468]	[0.221]	[0.321]	[0.270]
Education: High school	-0.123	-0.088	-0.198	-0.028	-0.153	-0.111
	[0.096]	[0.097]	[0.114]	[0.148]	[0.195]	[0.112]
Education: Between	-0.114	-0.095	-0.226	0.023	-0.026	-0.169
	[0.085]	[0.085]	[0.115]	[0.134]	[0.168]	[0.107]
Education: With University Degree	-0.159	-0.122	-0.219	-0.072	-0.015	-0.232
	[0.090]	[0.092]	[0.117]	[0.148]	[0.177]	[0.107]*
Contacts with family member	0.154	0.148	0.113	0.199	0.124	0.154
outside household	[0.072]*	[0.072]*	[0.098]	[0.114]	[0.151]	[0.092]
Contacts with friends	0.425	0.367	0.376	0.492	0.257	0.482
	[0.086]**	[0.086]**	[0.141]**	[0.121]**	[0.161]	[0.117]**
Contacts with neighbours	0.09	0.039	0.005	0.151	0.165	0.051
	[0.074]	[0.073]	[0.103]	[0.113]	[0.136]	[0.087]
Number of membership or	0.007	0.008	0.002	0.017	0.023	-0.006
extent of activity	[0.013]	[0.013]	[0.020]	[0.019]	[0.023]	[0.017]
Trust in general	0.112	0.116	0.157	0.071	0.161	0.099
	[0.048]*	[0.046]*	[0.061]*	[0.073]	[0.087]	[0.057]

trust in neighbours	0.221	0.211	0.265	0.183	0.046	0.285
	[0.064]**	[0.063]**	[0.089]**	[0.095]	[0.115]	[0.079]**
Trust or confidence in police	0.168	0.17	0.209	0.121	0.121	0.197
	[0.099]	[0.101]	[0.141]	[0.134]	[0.164]	[0.136]
Importance of religion	0.162	0.136	0.119	0.193	0.264	0.125
	[0.088]	[0.089]	[0.140]	[0.122]	[0.152]	[0.114]
Frequency of attending	-0.046	-0.039	-0.046	-0.052	-0.187	0.018
religious services	[0.100]	[0.101]	[0.153]	[0.128]	[0.160]	[0.124]
Dummy, Union Status		0.14				
		[0.049]**				
Job: Requires skill		0.233				
		[0.110]*				
Job: Has variety of tasks		0.393				
		[0.105]**				
Job: Have enough time		0.178				
		[0.080]*				
Job: Free of conflicting demands		0.23				
		[0.068]**				
Job: Makes own decision		-0.025				
		[0.107]				
cut1:Constant	1.203	1.469	1.443	1.274	1.036	1.115
	[0.377]**	[0.380]**	[0.553]**	[0.569]*	[0.714]	[0.447]*
cut2:Constant	1.371	1.638	1.678	1.372	1.228	1.273
	[0.374]**	[0.378]**	[0.541]**	[0.573]*	[0.724]	[0.439]**
cut3:Constant	1.516	1.784	1.82	1.522	1.364	1.424
	[0.376]**	[0.381]**	[0.544]**	[0.571]**	[0.721]	[0.438]**
cut4:Constant	1.793	2.065	2.063	1.838	1.643	1.704
	[0.370]**	[0.377]**	[0.538]**	[0.554]**	[0.713]*	[0.425]**
cut5:Constant	2.258	2.537	2.498	2.335	2.024	2.21
	[0.373]**	[0.382]**	[0.552]**	[0.559]**	[0.724]**	[0.427]**
cut6:Constant	2.59	2.874	2.873	2.629	2.333	2.554
	[0.378]**	[0.387]**	[0.561]**	[0.566]**	[0.726]**	[0.432]**
cut7:Constant	3.304	3.597	3.613	3.324	3.127	3.24
	[0.378]**	[0.387]**	[0.564]**	[0.570]**	[0.730]**	[0.433]**
cut8:Constant	4.223	4.528	4.517	4.266	4.057	4.166
	[0.381]**	[0.389]**	[0.568]**	[0.574]**	[0.732]**	[0.437]**
cut9:Constant	4.821	5.134	5.126	4.861	4.673	4.766
	[0.380]**	[0.389]**	[0.574]**	[0.578]**	[0.734]**	[0.439]**
Observations	2480	2478	1209	1271	845	1635

Standard errors in brackets

* significant at 5%; ** significant at 1%

Note 1: Self-employed is excluded in the two Canadian surveys.

Note 2: The omitted age group in ESC regressions is age18-24

Note 3: Please refer to Appendix Table 1 for descriptive statistics by samples

Table 3: Compensating differentials, derived from estimates in table 2

Sample	Canadian ESC2, year 2002-3				
Sub-sample	Paid workers				
Subsubsample	Whole	Male	Female	Union	Non-Union
coefficient of the Log of personal income					
	0.20	0.24	0.17	0.22	0.19
coefficient of the standardized score of trust in management					
	0.19	0.15	0.22	0.13	0.24
Ratio of coefficients*					
	0.93	0.64	1.25	0.61	1.30
Approximated percentage income change associated with one third of a standard deviation, such a movment covers roughly 10% of the sample**					
	31%	21%	42%	20%	43%
Standard error**	7%	6%	14%	8%	10%

* The ratio of coefficients from the ordered probit estimation can be interpreted as the ratio of marginal effects of two variables.
   The ratios of coefficients are very similar when OLS estimations are used instead of Ordered Probit.
** It is simply one third of the ratio expressed in percentage term.
**Standard error is calculated from the Delta method from the variance co-variance matrix of the estimated coefficients

Appendix Table 1: Descriptive Statistics:
ESC:

Sample: Canadian ESC	Paid workers			Paid workers Union Members			Paid workers Non Union Members		
Variable	Obs	Mean	Std. Dev.	Obs	Mean	Stdev	Obs	Mean	Stdev
Life satisfaction, 1-10 point scale	2523	7.95	1.63	858	8.05	1.58	1665	7.90	1.65
Job satisfaction, 1-10 point scale	2523	7.26	1.88	858	6.95	1.94	1665	7.42	1.83
Log of personal income	2523	10.45	0.70	858	10.59	0.55	1665	10.38	0.76
Log of personal income per work hour	2427	6.84	0.65	827	7.00	0.54	1600	6.75	0.68
Working part time	2523	0.13	0.33	858	0.13	0.33	1665	0.12	0.33
Work hours	2427	38.60	9.32	827	37.64	8.70	1600	39.10	9.60
Age	2484	40.49	10.57	847	42.70	9.90	1637	39.35	10.73
Male	2523	0.48	0.50	858	0.44	0.50	1665	0.51	0.50
Married	2523	0.52	0.50	858	0.55	0.50	1665	0.51	0.50
Education: With University Degree	2523	0.34	0.47	858	0.37	0.48	1665	0.32	0.47
Trust in management, 1-10 point	2523	6.73	2.28	858	5.95	2.30	1665	7.14	2.16
Trust in general, 0-1 scale	2523	0.65	0.47	858	0.67	0.46	1665	0.64	0.48
Confidence that neighbor will return the wallet, 0-1	2523	0.65	0.34	858	0.66	0.33	1665	0.65	0.35
Confidence that police will return the wallet, 0-1	2523	0.83	0.28	858	0.83	0.28	1665	0.83	0.28
Job: Requires skill, 0-1 scale	2522	0.78	0.27	857	0.81	0.25	1665	0.76	0.27
Job: Has variety of tasks, 0-1 scale	2523	0.86	0.23	858	0.87	0.21	1665	0.85	0.24
Job: Have enough time, 0-1 scale	2523	0.65	0.32	858	0.59	0.34	1665	0.69	0.31
Job: Free of conflicting demands, 0-1 scale	2522	0.51	0.33	858	0.47	0.33	1664	0.53	0.33
Job: Makes own decision, 0-1 scale	2523	0.77	0.29	858	0.74	0.29	1665	0.78	0.28
Sense of job security, 1-4 scale	2487	3.25	0.86	849	3.30	0.86	1638	3.22	0.87
Dummy: Union member	2523	0.34	0.47	858	1.00	0.00	1665		
Dummy: immigrant	2523	0.21	0.41	858	0.18	0.38	1665	0.23	0.42
Dummy: Visible Minority	2523	0.13	0.33	858	0.09	0.29	1665	0.15	0.35

Sample: Canadian ESC	Paid workers Male			Paid workers Female		
Variable	Obs	Mean	Std. Dev.	Obs	Mean	d. Dev.
Life satisfaction, 1-10 point scale	1220	7.91	1.63	1303	7.99	1.62
Job satisfaction, 1-10 point scale	1220	7.25	1.85	1303	7.27	1.91
Log of personal income	1220	10.64	0.68	1303	10.27	0.67
Log of personal income per work hour	1169	6.94	0.66	1258	6.74	0.63
Working part time	1220	0.06	0.24	1303	0.19	0.39
Work hours	1169	41.53	8.34	1258	35.88	9.37
Age	1211	40.07	10.58	1273	40.90	10.56
Male	1220	1.00	0.00	1303	0.00	0.00
Married	1220	0.51	0.50	1303	0.53	0.50
Education: With University Degree	1220	0.34	0.48	1303	0.33	0.47
Trust in management, 1-10 point	1220	6.67	2.26	1303	6.80	2.30
Trust in general, 0-1 scale	1220	0.64	0.47	1303	0.66	0.47
Confidence that neighbor will return the wallet, 0-1	1220	0.65	0.34	1303	0.66	0.34
Confidence that police will return the wallet, 0-1	1220	0.83	0.29	1303	0.83	0.27
Job: Requires skill, 0-1 scale	1220	0.80	0.26	1302	0.76	0.27
Job: Has variety of tasks, 0-1 scale	1220	0.86	0.23	1303	0.86	0.23
Job: Have enough time, 0-1 scale	1220	0.68	0.31	1303	0.63	0.33
Job: Free of conflicting demands, 0-1 scale	1219	0.53	0.33	1303	0.49	0.33
Job: Makes own decision, 0-1 scale	1220	0.79	0.27	1303	0.74	0.29
Sense of job security, 1-4 scale	1203	3.24	0.85	1284	3.26	0.88
Dummy: Union member	1220	0.31	0.46	1303	0.37	0.48
Dummy: immigrant	1220	0.25	0.43	1303	0.18	0.39
Dummy: Visible Minority	1220	0.14	0.35	1303	0.12	0.32

Canadian GSS

Sample: Canadian GSS	working population	
Variable	Mean	Std. Dev.
Life satisfaction	7.95	1.42
trust in co-workers	3.82	0.97
Identifiable Minority, include most asian ethnicities and aboriginals	0.23	0.42
immigrant status	0.18	0.38
year since immigration	3.88	10.23
age	39.51	11.43
% married	0.52	0.50
% male	0.55	0.50
log of household income	11.05	0.55
log of personal income	10.50	0.66
Mastery Scale	0.25	0.14
Health Status	3.91	0.91
University degress	0.26	0.44
Frequency of Visiting Relatives	0.50	0.30
Friendship	0.67	0.26
Contact with neighbours	0.52	0.32
membership	0.42	0.41
general trust	0.57	0.49
trust in neighbours	0.67	0.26
confidence in police	0.73	0.24
importance of religion	0.45	0.39
Frequency of attending religious services	0.31	0.36
% union	0.32	0.47

* We are not allowed to publish detail sample size of GSS

US Benchmark

Sample: US Benchmark	Working population		
Variable	Obs	Mean	Std. Dev.
Happiness: 1-4 point scale	16519	3.33	0.58
Log of household income	16519	10.79	0.68
age	16519	39.75	12.08
male	16519	0.46	0.50
married	16519	0.52	0.50
Education: With University Degree	16519	0.40	0.49
Trust in co-workers, 1-4 scale	16519	3.40	0.79
general trust, 0-1 scale	16519	0.55	0.48
Trust in neighbours, 0-1 scale	16220	0.75	0.28
Confidence in police, 0-1 scale	16305	0.76	0.28
Dummy: union member	16519	0.13	0.34
Non Hispanic White	16519	0.75	0.43