

Abstract

Could liquid wealth, or “cash on hand”—the balance of one’s checking and savings accounts—be a better predictor of life satisfaction than income? In a field study using 585 UK bank customers, we paired individual Satisfaction With Life Scale responses with anonymized account data held by the bank, including the full account balances for each respondent. Individuals with higher liquid wealth were found to have more positive perceptions of their financial well-being, which in turn predicted higher life satisfaction, suggesting that liquid wealth is indirectly associated with life satisfaction. This effect persisted after accounting for multiple controls, including investments, total spending, and indebtedness (which predicted financial well-being) and demographics (which predicted life satisfaction). Our results suggest that having readily-accessible sources of cash is of unique importance to life satisfaction, above and beyond raw earnings, investments, or indebtedness. Therefore, to improve the well-being of citizens, policymakers should focus not just on boosting incomes but also on increasing people’s immediate access to money.

Keywords: Life satisfaction, well-being, economic psychology, happiness

How Your Bank Balance Buys Happiness:

The Importance of “Cash on Hand” to Life Satisfaction

A substantial and growing body of research has investigated the importance of wealth to subjective well-being. Most of this work has revealed a small, but discernible, relationship between income and well-being (for reviews, see Clark, Frijters, & Shields, 2008; Diener & Biswas-Diener, 2002; Diener & Oishi, 2000). Superficially, it appears that wealthier individuals—or at least, those who have sufficient wealth to meet, or marginally exceed, their basic needs (Kahneman & Deaton, 2010)—are also happier. However, using income as the sole measure of financial wealth provides an incomplete portrait of the link between wealth and well-being. For example, individuals who over-spend their incomes and accumulate debt may gain less hedonic benefit from their wealth than those who earn the same but prudently save or invest their money (see Chancellor & Lyubomirsky, 2011; Dunn, Gilbert, & Wilson, 2011). Consistent with this theory, both lack of debt (Brown, Taylor, & Price, 2005) and total assets (Headey, Muffels, & Wooden, 2008; Headey & Wooden, 2004; Johnson & Krueger, 2006) have been found to be stronger predictors of life satisfaction than income alone.

One explanation for these findings is that people hold different “mental accounts” (Thaler, 1990) to organize and manage their financial decisions. Different financial accounts may therefore have distinct hedonic impacts, even though they each draw on the same fungible resource. For example, building up money in a retirement investment account may provide peace of mind when considering long-term goals but no benefit for short-term financial security. By contrast, immediately accessible accounts, such as savings and checking accounts, are accessed far more frequently than others, offering a persistent reminder of financial health (or lack thereof).

Furthermore, people find income losses more aversive than they find income gains pleasant (Boyce, Wood, Banks, Clark, & Brown, 2013; Kahneman & Tversky, 1979)—a particularly important finding at a time when household income levels are increasingly volatile (Dymen, Elmendorf, & Sichel, 2007). As such, individuals who have ample cash available to them as a buffer may feel more secure in their financial situation, and thus more satisfied with their lives, than those with less cash “on hand,” regardless of how much money they earn or whether or not they have debt. We thus propose that *having* money is uniquely associated with higher life satisfaction, above and beyond other measures of financial wealth, via increased perceived financial security.

Finally, most research to date has relied on self-reports of income and wealth. However, financial behaviors can be misreported in a variety of ways. For example, people may choose not to report their incomes or simply be unaware of how much money they possess and earn. Instead of offering an objective, accurate assessment of their finances, they may provide “best guesses” biased by a desire to appear affluent or to convince themselves of their own wealth. To avoid these issues with self-report measures of wealth, we used objective, bank-reported measures of income and wealth.

Method

Participants

Participants were customers of a large national bank in the United Kingdom who were recruited by email in late 2014 to complete a survey about their financial attitudes and behaviors, as well as their life satisfaction. The survey was randomly sent to approximately 150,000 customers in the UK. The sample size was selected to maximize the number of survey recipients without interfering with other surveys administered by the bank. A total of 912 individuals both

completed the survey and agreed to have their responses linked to their bank-reported financial data from the previous 12 months. The response rate was typical of other surveys administered by the bank. Of the 912 respondents, 617 had an active account for the entirety of the preceding 12 months and reported that their checking account with the bank was their primary account. Because average account balance was log transformed for analyses, 32 participants with negative average account balances were excluded,¹ leaving a final sample of 585 participants (367 female, 217 male, 1 not reported; $M_{\text{age}} = 37.4$ years [range = 18-75, $SD = 14.8$]).

Measures

Liquid wealth. Liquid wealth was the monthly average of participants' combined checking and savings account balances as reported by the bank on the first day of each month (range = £0.08-78,648.75, $M = £4,751.96$, median = £1,006.08, $SD = 9,812.12$). To correct for positive skew and account for diminishing hedonic returns of wealth (Diener & Biswas-Diener, 2002; Kahneman & Deaton, 2010), scores were log transformed prior to analyses ($M = 3.04$, median = 3.00, $SD = 0.81$).

Life satisfaction. Life satisfaction was assessed with the 5-item Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985), a widely used measure of global life evaluation. Each item was completed on a 5-point Likert scale, and answers to the 5 items were summed, yielding a possible score range of 5 to 25 ($M = 15.81$, $SD = 4.44$). The scale had good internal reliability in this sample, $\alpha = .86$.

Perceived financial well-being. Perceived financial well-being was assessed with a 2-item scale ("I often lose sleep worrying about my finances" [reverse-scored] and "I am confident

¹Analyses that included participants with negative balances, with a constant value added to all account balance scores so that the lowest value was 1, produced nearly identical results to analyses that excluded those participants. To simplify interpretation of unstandardized regression coefficients of liquid wealth, we report only the analyses that excluded negative-account participants.

in my ability to handle an unexpected expenditure up to £500”) adapted from the Incharge scale of financial well-being (Prawitz et al., 2006). Each item was completed using a 5-point Likert scale, and answers to the two items were summed, yielding a possible score range of 2 to 10 ($M = 7.06$, $SD = 2.10$). Internal reliability in this sample was mediocre, $\alpha = .50$; however, because the other predictors of life satisfaction in the final model were measured with minimal error, any measurement error in perceived financial well-being should only make our parameter estimates more conservative.²

Income. Income was the bank-reported monthly average of credits to participants’ checking accounts (range = £19.42-18,539.41, $M = £1,960.11$, median = £1,559.75, $SD = 1,697.46$). Scores were log transformed prior to analyses ($M = 3.16$, median = 3.19, $SD = 0.37$).

Total spending. Spending was the bank-reported monthly average of debits from participants’ checking accounts across all spending categories (range = £10.85-5,822.71, $M = £1,155.23$, median = £946.53, $SD = 895.48$). Scores were log transformed prior to analyses ($M = 2.92$, median = 2.98, $SD = 0.40$).

Total investments. Participants reported the total value of their investments, excluding pension plans, at the time of the survey (range = £0-750,000, $M = £5,399.67$, median = 0, $SD = 38,793.63$). Scores were log transformed after adding 1 to each response so that the minimum value before the log transformation was applied was 1 ($M = 0.64$, median = 0, $SD = 1.44$).

Indebtedness status. Participants reported their total outstanding debt from personal loans and credit cards, excluding mortgages and business loans, at the time of the survey.

Because the majority of participants ($n = 379$) reported having no debt, and because log-

²To verify this assumption, we analyzed a second model using correlations corrected for attenuation instead of the raw data, with the reliabilities of Likert-scale predictors set at their alphas and the reliabilities of all other predictors conservatively set at .90. As expected, the parameter estimates from this model were consistently in the same direction as, but stronger than, the estimates from the reported model.

transformed total debt and financial well-being were not correlated among participants who reported a non-zero amount of debt ($r = .00, p = .97$), indebtedness was converted to a dichotomous variable (Debt vs. No Debt) and dummy coded with No Debt as the 0-coded group.

Employment status. Self-reported employment status was dummy-coded on three variables: Employed (working full-time or part-time; $n = 429$), Student ($n = 45$), and Retired ($n = 52$), each scored as +1 on their respective variables and 0 on the other variables. Participants who were not in any of the 1-coded groups (i.e., who were not employed, a student, or retired; $n = 59$) were scored as 0 on each variable. Additionally, 19 participants who gave an open-ended “Other” response to the employment question were categorized by the first author.

Relationship status. Participants reported their relationship status as one of three levels: married, living with a partner, or single (including widowed, divorced, or separated). Relationship status was then converted to a single dichotomous variable (In Relationship [married or living with partner] vs. No Relationship) and dummy coded with No Relationship as the 0-coded group ($n = 259$).

Results

Simple Correlations

Table 1 presents the correlation matrix among all model variables, excluding employment status. Consistent with our hypothesis, log-transformed liquid wealth was positively correlated with both perceived financial well-being, $r = .39, p < .001, 95\% \text{ CI} = [.35, .49]$, and life satisfaction, $r = .21, p < .001, 95\% \text{ CI} = [.13, .28]$. The correlation between liquid wealth and life satisfaction was significantly stronger than the correlations between life satisfaction and income ($z = 2.81, p = .005$), indebtedness ($z = 1.99, p = .046$), and spending ($z = 2.22, p = .026$), but not log-investments ($z = 0.85, p = .40$). Furthermore, the direct association between liquid wealth

and life satisfaction remained significant even after controlling for the other financial variables, age, employment, and relationship status using multiple regression, $\beta = .13$, $p = .012$, 95% CI = [.03, .23], $r_{\text{semipartial}} = .10$.

Table 1
Zero-order correlations among variables in the mediation model

Variable	1	2	3	4	5	6	7	8
1. Life satisfaction								
2. Perceived financial distress	.39*** [.32, .46]							
3. Log average monthly liquid wealth	.21*** [.13, .29]	.42*** [.35, .48]						
4. Log average monthly income	.09* [.01, .17]	.14*** [.06, .22]	.44*** [.37, .50]					
5. Log total investments	.17*** [.09, .25]	.21*** [.14, .29]	.29*** [.21, .36]	.23*** [.15, .30]				
6. Indebtedness (0 = no debt)	-.11** [-.19, -.03]	- [.25***, -.32]	- [.19***, -.27]	.16*** [.08, .24]	-.03 [-.11, .05]			
7. Log average monthly spending	.12** [.04, .20]	.12** [.04, .20]	.47*** [.41, .53]	.80*** [.77, .83]	.20*** [.12, .27]	.20*** [.12, .27]		
8. Relationship status (0 = no relationship)	.12** [.04, .20]	.04 [-.05, .12]	.11** [.03, .19]	.24*** [.16, .32]	.10* [.02, .18]	.15*** [.07, .23]	.27*** [.20, .35]	
9. Age	-.03 [-.11, .05]	.06 [-.02, .14]	.28*** [.20, .35]	.27*** [.19, .34]	.21*** [.13, .28]	.03 [-.05, .11]	.25*** [.17, .32]	.17*** [.09, .25]

Note. * $p < .05$. ** $p < .01$. *** $p < .001$. 95% confidence intervals in brackets below each correlation.

Due to missing values, correlations with the relationship status variable use $N = 570$.

Mediation Model: Indirect Effect of Liquid Wealth

A path analysis was conducted to test whether the relationship between liquid wealth and life satisfaction was mediated by perceived financial well-being. To isolate the indirect effect of

liquid wealth above and beyond other indicators of financial health, the model controlled for log-transformed income, log-transformed total investments, and indebtedness status when predicting perceived financial well-being (see Figure 1). Importantly, by controlling for both earnings and spending, the estimated effect of liquid wealth becomes the effect of cash on hand after income and expenses. The direct paths between financial variables and life satisfaction were retained to calculate both indirect and total effects on life satisfaction. Relationship status, employment status, and age were included as covariates predicting life satisfaction. The model was estimated using full-information maximum likelihood to account for a small number ($n = 15$) of missing responses to the relationship status question. Standard errors were estimated using bootstrapping with 5000 draws. Model fit was acceptable, $\chi^2(5) = 12.40, p = .03$; RMSEA = .050; CFI = .973; TLI = .886.

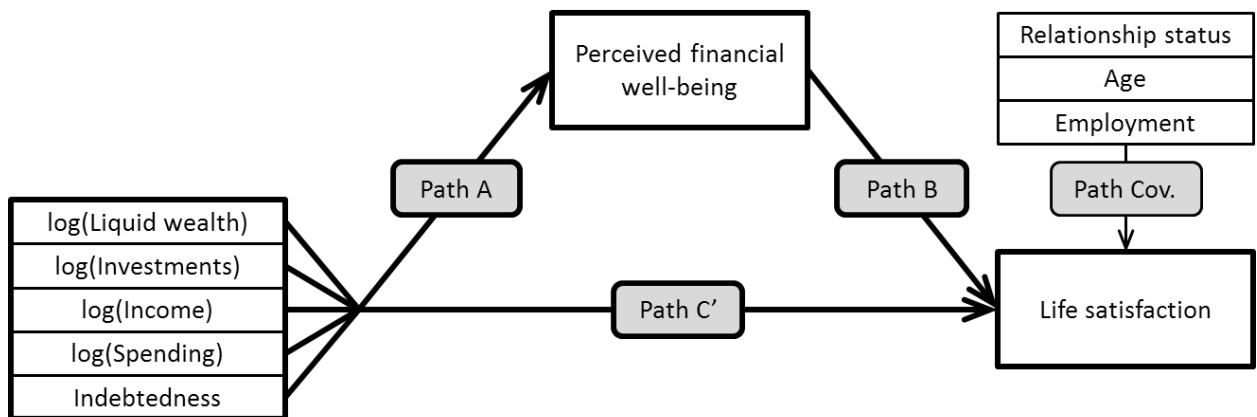


Figure 1. Path model of the indirect effect of liquid wealth on life satisfaction via perceived financial well-being, controlling for investments, income, spending, and indebtedness. The model was estimated using full-information maximum likelihood. Path estimates are shown in Table 2. Correlations among exogenous variables were fixed at their sample levels; for clarity of presentation, correlation-only paths are not shown. $N = 585$; model estimated with full-information maximum likelihood to account for missing responses ($n = 15$) to the relationship status question. Liquid wealth, income, monthly spending, and age were bank-reported; all other variables were participant-reported.

Path coefficients and indirect and total effects are shown in Table 2. Controlling for income, investments, indebtedness, and spending, the unstandardized indirect effect of liquid wealth on life satisfaction, via perceived financial well-being, was 0.693. In other words, a 1-log, or 10-fold, increase in monthly liquid account balance was associated with an average increase of 0.69 points in life satisfaction by way of improved self-reported financial well-being. The bias-corrected bootstrap 95% confidence interval did not contain zero, $CI = [0.47, 0.99]$, suggesting that the indirect effect was significantly greater than zero. Among the other financial variables, only total investments ($b = 0.11$, $CI = [0.04, 0.20]$) and indebtedness ($b = -0.51$, $CI = [-0.82, -0.26]$) had a significant indirect effect on life satisfaction. Total investments was the only financial variable with a significant direct effect on life satisfaction, controlling for the indirect path, $b = 0.29$, $CI = [0.04, 0.54]$. Liquid wealth and investments were the only financial variables with significant total (direct plus indirect) effects on life satisfaction, with comparable effect strengths ($\beta = .12$ for liquid wealth, $\beta = .13$ for investments). Finally, excluding the direct path between liquid wealth and life satisfaction did not significantly increase model deviance relative to a model with the direct path included, $\Delta\chi^2(1) = 0.02$, $p = .90$. This finding suggests that the direct path between liquid wealth and life satisfaction was unnecessary when the indirect path was included; in other words, the relationship between liquid wealth and life satisfaction was fully explained by increased perceived financial well-being.

Table 2
Path coefficients and indirect/total effects of mediation model (Figure 1)

Predictor	Path A Effects of financial variables on financial well-being (mediator)				Path C' Residual direct effects of financial variables on life satisfaction			
	<i>b</i>	[95% CI]	<i>SE</i>	β	<i>b</i>	[95% CI]	<i>SE</i>	β
log(Liquid wealth)	0.98 *	[0.72, 1.24]	0.13	.38	-0.03	[-0.60, 0.48]	0.27	-.01
log(Monthly income)	0.12	[-0.58, 0.88]	0.38	.02	-0.47	[-1.99, 1.01]	0.77	-.04
log(Total investments)	0.16 *	[0.05, 0.26]	0.05	.11	0.29 *	[0.04, 0.54]	0.13	.10
Indebtedness (0 = no debt)	-0.72 *	[-1.06, -0.37]	0.18	-.16	-0.20	[-1.00, 0.58]	0.40	-.02
log(Monthly spending)	-0.32	[-1.07, 0.36]	0.36	-.06	1.07	[-0.47, 2.63]	0.79	.10
Predictor	Path A×B Indirect effects of financial variables on life satisfaction				Path A×B+C' Total effects of financial variables on life satisfaction			
	<i>b</i>	[95% CI]	<i>SE</i>	β	<i>b</i>	[95% CI]	<i>SE</i>	β
log(Liquid wealth)	0.69 *	[0.47, 0.99]	0.13	.13	0.66 *	[0.12, 1.21]	0.28	.12
log(Monthly income)	0.08	[-0.42, 0.64]	0.27	.01	-0.39	[-1.97, 1.17]	0.81	-.03
log(Total investments)	0.11 *	[0.04, 0.20]	0.04	.04	0.41 *	[0.14, 0.66]	0.13	.13
Indebtedness (0 = no debt)	-0.51 *	[-0.82, -0.26]	0.14	-.05	-0.70	[-1.52, 0.11]	0.41	-.08
log(Monthly spending)	-0.22	[-0.77, 0.26]	0.26	-.02	0.84	[-0.79, 2.40]	0.82	.08
Predictor	Paths B & Cov. Financial well-being and covariate effects on life satisfaction							
	<i>b</i>	[95% CI]	<i>SE</i>	β				
Financial well-being	0.71 *	[0.53, 0.87]	0.09	.34				
Relationship status	1.02 *	[0.30, 1.76]	0.37	.12				
Age in years	-0.04 *	[-0.07, -0.01]	0.01	-.15				
Employed	1.50 *	[0.26, 2.76]	0.63	.15				
Student	2.89 *	[1.18, 4.56]	0.85	.18				
Retired	3.21 *	[1.52, 4.85]	0.86	.21				

Note. All paths were estimated simultaneously; the effects shown in this table are conditional on the other predictors in the model.

b = unstandardized path estimate. [95% CI] = bias-corrected bootstrap 95% confidence interval around that estimate (* = confidence interval does not contain zero). *SE* = bootstrap standard errors of the path estimates. β = standardized path estimate.

Relationship status is dummy coded (0 = no relationship, 1 = married or cohabitating). Employed, Student, and Retired are dummy coded; the all-zero group is non-student/non-retired unemployed.

Discussion

Our results suggest that having a buffer of money available in checking and savings accounts confers a sense of financial security, which in turn is associated with greater life satisfaction. The strength of this association was comparable to the effect of investments—which may themselves be liquid assets (e.g., money market accounts)—and slightly greater than the effect of debt status. By contrast, higher income and spending—the amounts going into or out of a person’s bank account—were not associated with increased financial well-being after liquid wealth was included in the model. This finding suggests that people with low liquid account balances may feel more economically distressed—and thus less satisfied with their lives—than their peers with higher balances, even if their incomes and spending, considered separately from their account balances, would predict high financial security.

To put our results into context, we found that going from having £1 to having £1,000 (a 3-log increase) in one’s bank accounts each month—not rags-to-riches, but merely rags-to-sufficiency—is associated with an average gain of 2 points (10% of a 20-point scale) in life satisfaction by virtue of feeling more secure about one’s finances. However, because liquid wealth was log transformed, further increasing liquid assets from £1,000 to £10,000 (a 1-log increase) was associated with an expected increase of just 0.7 further points on the same scale. As with income (e.g., Kahneman & Deaton, 2010), the role of liquid wealth in life satisfaction appears to be subject to diminishing returns. Our findings thus highlight the importance of holding a minimal financial buffer, but also the relative *unimportance* of having wealth above sufficiency levels.

Furthermore, the indirect effect of liquid wealth on life satisfaction held even after controlling for the impact of other variables that may contribute to perceived financial well-being

and life satisfaction. For example, holding investments and not being in debt are both associated with greater financial well-being, but having cash “on hand” is meaningful above and beyond those measures of wealth. That is, individuals with cash in their bank accounts feel more confident about their finances, and thus more satisfied with their lives, than those with less cash, regardless of whether or not the former are in debt or possess other investments: Even high-earners with no debt and large investments are happier if they keep some of their wealth easily-accessible than if they live with consistently little money left available after expenses. Future research should build on these findings by assessing life satisfaction longitudinally to explore how changes in liquid assets relate to changes in life satisfaction.

Our research used individual, rather than the more typical household-level, measures of income and liquid wealth. As such, our measures may have underestimated the true amount of wealth participants had available to them (e.g., if they had additional income deposited into a secondary bank account). Although this bias is unlikely to have accounted for our results, future studies could examine the importance of liquid wealth using both individual and household measures.

In conclusion, while our correlational data do not permit causal inferences, we find that immediate access to money plays a unique role in explaining the relationship between money and life satisfaction, above and beyond earnings, investments, and indebtedness. While many individuals believe that increasing income or total wealth will improve their happiness, they may also benefit by building a financial buffer in their checking and savings accounts. We found this buffer to be associated with improved well-being regardless of how much a person earns, invests, or owes. Additionally, policymakers aiming to maximize psychological well-being might encourage individual saving (e.g., by raising interest rates) when it is economically viable to do

so, or encourage financial products that incentivize holding a buffer of money in liquid form. In light of the uncertain association between income and well-being (Easterlin, 1974, 1995), a shift towards encouraging a savings buffer may promote a more financially secure—and thus happier—society above and beyond economic and income growth.

References

- Boyce, C. J., Wood, A. M., Banks, J., Clark, A. E., & Brown, G. D. (2013). Money, well-being, and loss aversion: Does an income loss have a greater effect on well-being than an equivalent income gain? *Psychological Science, 24*, 2557-2562.
doi:10.1177/0956797613496436
- Brown, S., Taylor, K., & Price, S. W. (2005). Debt and distress: Evaluating the psychological cost of credit. *Journal of Economic Psychology, 26*, 642-663.
doi:10.1016/j.joep.2005.01.002
- Chancellor, J., & Lyubomirsky, S. (2011). Happiness and thrift: When (spending) less is (hedonically) more. *Journal of Consumer Psychology, 21*, 131-138.
doi:10.1016/j.jcps.2011.02.004
- Clark, A. E., Frijters, P., & Shields, M. A. (2008). Relative income, happiness, and utility: An explanation for the Easterlin paradox and other puzzles. *Journal of Economic Literature, 46*, 95-144. doi:10.1257/jel.46.1.95
- Diener, E., & Biswas-Diener, R. (2002). Will money increase subjective well-being? *Social Indicators Research, 57*, 119-169. doi:10.1023/A:1014411319119
- Diener, E., & Oishi, S. (2000). Money and happiness: Income and subjective well-being across nations. In E. Diener, & E. M. Suh (Eds.), *Culture and subjective well-being* (pp. 185-218). Cambridge: The MIT Press.
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The Satisfaction with Life Scale. *Journal of Personality Assessment, 49*, 71-75. doi:10.1207/s15327752jpa4901_13
- Diener, E., Ng, W., Harter, J., & Arora, R. (2010). Wealth and happiness across the world: Material prosperity predicts life evaluation, whereas psychosocial prosperity predicts

- positive feeling. *Journal of Personality and Social Psychology*, *99*, 52-61.
doi:10.1037/a0018066
- Dunn, E. W., Gilbert, D. T., & Wilson, T. D. (2011). If money doesn't make you happy, then you probably aren't spending it right. *Journal of Consumer Psychology*, *21*, 115-125.
doi:10.1016/j.jcps.2011.02.002
- Dynan, K. E., Elmendorf, D. W., & Sichel, D. E. (2007). *The evolution of household income volatility*. Washington, D.C.: Federal Reserve Board.
- Easterlin, R. A. (1974). Does economic growth improve the human lot? Some empirical evidence. In P. A. David, & M. W. Reder (Eds.), *Nations and Households in Economic Growth* (pp. 89-125). New York: Academic Press.
- Easterlin, R. A. (1995). Will raising the incomes of all increase the happiness of all? *Journal of Economic Behavior & Organization*, *27*, 35-47. doi:10.1016/0167-2681(95)00003-B
- Headey, B., & Wooden, M. (2004). The effects of wealth and income on subjective well-being and ill-being. *Economic Record*, *80*, S24-S33. doi:10.1111/j.1475-4932.2004.00181.x
- Headey, B., Muffels, R., & Wooden, M. (2008). Money does not buy happiness: Or does it? A reassessment on the combined effects of wealth, income, and consumption. *Social Indicators Research*, *87*, 65-82. doi:10.1007/s11205-007-9146-y
- Johnson, W., & Krueger, R. F. (2006). How money buys happiness: Genetic and environmental processes linking finances and life satisfaction. *Journal of Personality and Social Psychology*, *90*, 680-691. doi:10.1037/0022-3514.90.4.680
- Kahneman, D., & Deaton, A. (2010). High income improves evaluation of life but not emotional well-being. *Proceedings of the National Academy of Sciences*, *107*, 16489-93.
doi:10.1073/pnas.1011492107

Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk.

Econometrica, 47, 263-292.

Prawitz, A. D., Garman, E. T., Sorhaindo, B., O'Neill, B., Kim, J., & Drentea, P. (2006).

Incharge Financial Distress/Financial Well-Being Scale: Development, administration, and score interpretation. *Journal of Financial Counseling and Planning*, 17, 34-50.

Thaler, R. H. (1990). Anomalies: Saving, fungibility, and mental accounts. *Journal of*

Economic Perspectives, 4, 193-205.

