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Julia Hölzl, BSc BSc

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Introduction

“Money cannot buy happiness” – a very popular quote which is often used without being questioned. But is it really true? In order to address this question, a vast amount of research has been conducted during the last decades (Clark, Frijters & Shields, 2007). In a nutshell, it seems that after meeting a human’s basic needs, the impact of income on happiness is steady but rather weak (Diener & Biswas-Diener, 2002; Frey & Stutzer, 2000; Di Tella & MacCulloch, 2008).

Income and happiness

A pioneer in this research area was Richard A. Easterlin. In 1974, he published a paper in which he stated that even though prosperity has increased tremendously during the years after the two world wars, there was no major increase in happiness. It is crucial to note that within countries, a positive connection between income and happiness could be found, while this effect seems to have disappeared doing between country comparisons (Easterlin, 1974). In later literature this phenomenon is referred to as the Easterlin Paradox (Frank, 2012).

This paradox has been widely debated within the scientific community, and several possible explanations have been detected. Results show that when a gain of income occurs, happiness levels increase to a higher degree for low to moderate-income receivers than for people with high income. This concept is referred to as diminishing-marginal utility (Zee Ma & Zhang, 2014). In the context of happiness and income it can be interpreted that as soon as basic needs like health, leisure-time, work-life balance, entertainment and social networking et cetera are met, the additional happiness gain for rising income is decreasing (Zee Ma & Zhang, 2014).

Research indicated that the most popular theories for explaining the Easterlin Paradox are those of adaptation and social comparison. Adaptation means that even though in short-term an increase in income is associated to an increase in happiness, people get used to their new income

situation quite fast and this new financial situation becomes their new point of reference (Paul & Guilbert, 2013). Di Tella, Haisken-De New and MacCulloch (2010) found that this adaptation effect is very powerful, as four years after an income shock, the income effect has completely disappeared. Brickman and Campell (1971) termed the tendency of happiness levels going back to a basic level after favorable circumstances the “hedonic treadmill”.

Furthermore, people do not tend to evaluate their income isolated from others. In fact, they use individuals from their “peer group” as a reference point: if the income of those around is increasing, it has a negative effect on one’s happiness, although the income stays the same (Paul & Guilbert, 2013). In specific economic situations, however, it can also be forecast that individuals would evaluate a rise of income in their peer group as an indicator of improvement of the overall economic situation, and therefore as a predictor for their own future. Thus, their happiness levels are increasing, while their income stays the same (Caporale, Georgellis, Tsitsianis & Ping Yin, 2009).

In his essay, Frank (2004) postulated to look at the Easterlin Paradox from another angle. He suggests that the reason for the absent increase of happiness after rising income levels is due to the way in which people spend the additional money: In order to experience a gain in happiness, income should be invested in inconspicuous goods rather than in bigger houses, more expensive cars etc. He assumes that the more is spent on conspicuous consumption goods, the less time and resources remains for restorative activities.

Of what nature could such restorative activities be? In order to find out it is of importance to know, what generally makes people happy. Lyubomirsky, Sheldon and Schkade (2005) drew a model with three major factors, which determines a person’s happiness level: a set point for happiness, which is genetically determined and therefore differs between subjects, a person’s individual circumstances which are relevant for happiness and, most relevant for this paper’s research

question, happiness-relevant and intentional activities and practices. As examples for such activities, amongst others, they state exercise, being kind to others, striving for important personal goals and devoting effort to meaningful causes.

Diener and Seligman (2002) conducted a survey in order to assess which kind of activities can be assigned to happy and which to unhappy people. One of their main results was that happy people tend to have stronger social relations. According to Thoits and Hewitt (2001), there also seems to be a connection between volunteer work and happiness. In conclusion, various research shows that social behavior seems to be positively related to happiness and well-being (Dulin, Gavalá, Stephens, Kostic & McDonald, 2012; Dulin & Dominy, 2008).

Relevant literature: The association between prosocial spending and happiness

The following chapter deals with the paper “Spending Money on Others Promotes Happiness” published from Elisabeth W. Dunn, Lara B. Aknin and Michael I. Norton in 2008 in great detail as it is the foundation of the research at hand. In order to find evidence for their assumption that the investment of one's income in others rather than in oneself could provoke measurable happiness benefits, they conducted a series of studies. In fact, an online survey, an experiment and a longitudinal study-confirmed Dunn et al.'s hypothesis.

As the survey was an initial test of the association between prosocial spending and happiness, it can be considered as highly influential on the scientific community. Therefore, it will be looked at closely in the following sections.

Summary of Dunn et al's (2008) paper

Six hundred and thirty-two Americans (55% female) completed a brief survey on happiness. They were incentivized by receiving points which could be redeemed for prizes. First, participants were asked to rate their general happiness, before they had to state their annual income. Next, they had to report how much they approximately spend on (i) bills and expenses, (ii) gifts for themselves, (iii) gifts for others and (iv) donations to charity in a typical month (Dunn et al, 2008).

For testing the hypothesis, bills and expenses and gifts for themselves were summed up into one index of “personal spending” [mean (M) = \$1713.91, SD = 1895.65], while gifts for others and donations to charity added up to the index of “prosocial spending” [mean (M) = \$ 145.96, SD = 306.06]. Subsequently, both indexes were simultaneously put into a regression predicting general happiness. The result shows that “personal spending” was not associated with happiness (standardized regression coefficient $\beta = -.02$, NS), while higher “prosocial spending” could be related to significantly higher happiness ($\beta = .11$, $p < .01$). Adding income, the effect of income ($\beta = .11$, $p < .01$) and “prosocial spending” ($\beta = .01$, $p < .01$) hardly changed, while there was still no connection between “personal spending” and happiness ($\beta = -.04$, NS) (Dunn et al, 2008).

Based on these results, the authors concluded whilst acknowledging that the correlational design of the study does not allow casual inferences that the way people spend their money might be of equal importance for happiness as how much money they have. Furthermore, spending money on others causes a higher increase in happiness than spending money on oneself (Dunn et al, 2008).

Relevance of the main literature

The research of Dunn et al (2008) had a huge impact on the scientific community. It was highly cited (913 by the 10.03.2017, Google Scholar) and served as starting point for multiple welfare increasing policy ambitions. For example, in Bono's RED campaign, people are told that donating is about doing what you enjoy and doing good at the same time. The American Red Cross campaign tells blood donors that "The need is constant. The gratification is instant". CARE and Susan G. Komen for the Cure also used emotional incentives for people to donate (Akin, Aknin, Norton & Dunn, 2009).

As evident in this paper, a lot of research is based on Dunn et al's (2008) findings. There is evidence that the relationship between prosocial spending and happiness is a psychological universal: all over the world there are people who spend some of their fortune on others and thus seem to gain happiness from that kind of behavior (Akin et al, 2013). Already toddlers experience increased happiness from acting in a prosocial way (Akin, Hamlin & Dunn, 2012). On top of that, there are findings that the benefits of prosocial spending have a positive impact on the cardiovascular health of adults diagnosed with high blood pressure (Whillans, Dunn, Sandstrom, Dickerson & Madden, 2016).

The relationship between happiness and giving seems to be bidirectional. Not only do people seem to be happier when acting prosocially, people who report greater well-being also seem to have a stronger "engine" for acting in a prosocial way (Thoits & Hewitt, 2001). Akin, Dunn and Norton (2012) found evidence for a positive feedback loop between prosocial spending and happiness. If people experience increased happiness after spending money on another person, they are more likely to repeat that kind of behavior. Research also reveals that benefits of giving emerge immediately after the good deed. Many individuals report some positive feeling, often described as a "warm glow", directly after giving (Bischoff & Krauskopf, 2015). These results are

important, because they can be used to encourage people to donate money and to engage in charitable work.

Explanations for the relationship between prosocial spending and happiness

Previous research also dealt with possible underlying mechanisms and principles of happiness and prosocial spending. Aaker and Akutsu (2009), for instance, suggest identity, defined as the way people see themselves and want to be seen by others, as a driver for giving. According to this, costly prosocial behavior is seen as signal for one's prosocial identity and therefore in line with people's self-perception. This may lead to repeated prosocial behavior (Gneezy, Imas, Brown, Nelson, & Norton, 2012).

There is evidence that the boost of happiness through prosocial spending is mediated by the improvement of social relations: In Yamaguchi et al's (2015) survey, undergraduate students only derived happiness benefits from prosocial spending, if those were used to enhance their social relationships.

Furthermore, some authors state that feeling powerful encourages spending more money on oneself than on others, while a state of feeling powerless encourages to spend more money prosocially (Rucker, Dubois & Galinsky, 2011).

Aknin, Dunn, Whillans, Grant & Norton (2013) wanted to figure out which circumstances are necessary for an association between happiness and prosocial spending. They found that for unlocking the emotional benefits from prosocial spending it is crucial that the giver feels that he or she has an impact on the receiver.

Critical remarks on Dunn et al's (2008) study

As apparent in the section above, Dunn et al's (2008) paper was a starting point for a lot of research concerning the relation of prosocial spending and happiness. The survey conducted for their paper can therefore be referred to as pioneer work. Accordingly, it is highly important to take a closer look at the methodology and the data.

Methodological problems and problems with the dataset. The survey is of correlational nature, and therefore only identifies associations between reported happiness and prosocial spending on a representative sample of six hundred thirty-two US citizens. Kindly, Lara Aknin provided the original dataset, which enables a brief look into it. The following section presents a critical view on this data record and provides justification.

There were two different data collection periods in this survey. In period 1, participants reported their age with a categorized variable, while they stated their exact age in period 2. This did not have any impact on the study results. For the reproduction, age in period 2 was categorized according to the categories of period 1.

Participants also had to report their nominal annual combined household income in six income brackets. This is considered as problematic, because it is not evident how many people are financed from this amount. Therefore, the survey is agnostic about the yearly or monthly budget of a focal respondent. There is also no information about the monthly income.

Due to these two features it was impossible to correctly determine what proportion of his or her income the focal participant spends on prosocial spending. All that is provided is the actual, nominal value. In this thesis, however, I argue that instead of the nominal household income the focal participants' disposable monthly income and also the proportion prosocially spent matter.

Furthermore, Dunn et al. (2008) created two spending indices. The amounts of the categories "bills and expenses" and "gifts for themselves" were summed up to an index called "personal

spending", and the categories "gifts for others" and "donations to charity" made up the category "prosocial spending". I strongly criticize this, as I believe that "bills and expenses" and "gifts for themselves" can hardly be compared to each other. While it can be assumed that the first is something that is at least irrelevant, if not even contra productive to happiness (if the person thrives paying them), following one's intuition, the latter could be positively associated to happiness. This could mean that those two components of one index act antagonistically.

Replicable and non-replicable results. The results reported in the paper could all be reproduced, when using all the data, $N = 632$. For their regression, Dunn et al. (2008) reported a significance of $p < .01$ in the paper, while the actual p-value was .011. Strictly spoken, a significance of $p < .05$ would have been the correct one to state. Also unmentioned in the paper, the effect of income on happiness with $\beta = .11$ was even slightly bigger than the effect of spending on others with $\beta = .10$.

In 2008, Dunn, Aknin & Norton published a revision of the calculations of their survey, in which they presented a more detailed look at the sample and the regressions. They reported violations of the assumptions of homoscedasticity and normality of errors, which, based on the results of bootstrapping, did not have any influence on the significance of the results.

Looking into the estimations of Cook's d two observations, which had the greatest influence, had been removed. The found effect of "spending on others" on happiness remained significant. In a second step, three data points, which were marked by high leverage (this included the first two observations and one with high leverage), were excluded. Similar to the first reproduction, the effect of spending on others remained unchanged. In order to gain insights into the original results, please consult Table A1 in Appendix A.

Reanalyzing data. As already mentioned, handling income and spending nominally raises some concerns. As an attempt to remedy this, a variable called “estimated monthly available household income” was created. For this, the means of the income categories given in the dataset were calculated, and divided each by 12 (i.e., number of months per year). This was only possible for the income brackets 2-5, because category 1 was not restricted by any lower limit, and for category 6 no upper income limit was known. Therefore, participants from the highest and the lowest income category had to be excluded. This left me with a sample of N=424 participants, in the following sections this will be called Sample 1.

Next, a category referred to as "disposable income" was created by subtracting the category "bills and expenses" from the new variable “estimated monthly available household income”. Now it was possible to find out which proportions of their individual income each person spent on "gifts for themselves", "gifts for others" and "donations". This is based on the assumption that proportions are better predictors than nominal values. I believe that it is not the total amount of money spent, but the proportion of its disposable income which is important for the impact of prosocial spending on happiness. With these calculations, it could be controlled for a possible income effect.

In order to ensure that the approach of calculating the proportions and excluding income category 1 and 6 does not cause any unexpected distortions, three regressions were calculated. For the first regression, the means of the income categories 2-5 were used. For the second regression, the “minimum available estimated monthly income” was used. Instead of the means of the income categories, the lower limit of each category was included in the calculations. As these limits are only known for the categories 2-6, category 1 had to be excluded. This sample will be called sample 1a in the following section. Similarly, the “maximum estimated monthly income” was used for the third regression. As the upper limits of the categories were used, category 6 had

to be excluded. This sample will be called sample 1b. Details on the samples can be found in Table A2 in Appendix A.

Comparing results of the complete dataset and sample 1 using proportions rather than nominal spending. First, some correlations were calculated. For this purpose, Spearman or Pearson correlations were used, depending on the variables scaling, which is either interval or categorical. As visible in Table A3 in Appendix A, in the complete dataset, as well as in sample 1, happiness correlated significantly, but with weak effect-size, with the “combined household income”, the “monthly estimated income” and the “disposable income”, as well as with the index “prosocial spending” and the “proportion spent on donations”. When looking at the confidence intervals, no significant differences between the samples could be detected. The correlation between happiness and the proportion of “prosocial spending” only reached significance in the complete sample, but the confidence intervals of both samples were overlapping. In both samples, income correlated weakly and to a comparable magnitude with the “personal spending” and “prosocial spending” indexes. Those also intercorrelated, whereby the correlation was significantly lower in sample 1.

The correlations between the disposable income and the indexes had a remarkable outcome: for the correlation with “personal spending”, a moderate effect in the total sample, and even a strong negative effect in sample 1 was found. The effect of the index “prosocial spending” was smaller, but also negative for both and significantly stronger for sample 1.

Calculations with the new samples (Samples 1, 1a and 1b). As explained in the section above, three newly created samples were used for calculation regressions. For details on sample descriptive, please consult Table A4 in Appendix A.

The purpose of those regressions was to get an idea on how sole spending categories are associated with happiness, when using proportions. Therefore, the proportion of the “disposable income”, the proportion “gifts for yourself”, the proportion “gifts for others”, the proportion “donations” and, as the younger participants might still live with their parents and therefore have lower fixed costs, age as a control variable, were stepwise included into the regressions. For each regression, a final model was calculated. This final model included all variables that reached a p-value $\leq .1$ in one of the previous steps of the regression.

In all regressions, income and age were included into the final model. Other than that, only in regression 2 the proportion of “gifts for others” reached significance when regressing happiness for sample 1a. Summing up the results, two out of three regressions were not consistent with Dunn et al’s (2008) predictions. For detailed results, please consult Tables 1-3.

As clearly visible in the sections above, due to the restricted original dataset, the calculations had to be based on estimations. It was not possible to properly address all open questions concerning the survey. For this reason, a new survey was created in order to replicate Dunn et al’s (2008) results. The main goal of this survey was to gain more information about the true nature of participants’ spending-and to get an idea, which components could be responsible for any possible association between prosocial spending and happiness.

Table 1.

Regressing (OLS) happiness on key variables – sample 1. $N = 424$

	I.	II.	III.	IV.	V.	VI. (final model)
Constant	4.03 (0.05)***	4.04 (0.05)***	4.04 (0.05)***	4.04 (0.05)***	3.89 (0.09)***	3.86 (0.09)***
Mean estimated disposable income	2.77*10 ⁽⁻⁵⁾ (0.00)+	2.87*10 ⁽⁻⁵⁾ (0.00)+	2,87*10 ⁽⁻⁵⁾ (0.00)+	2.86*10 ⁽⁻⁵⁾ (0.00)+	3.37*10 ⁽⁻⁵⁾ (0.00)*	3.31*10 ⁽⁻⁵⁾ (0.00)+
Mean proportion gifts for yourself		-0.66 (0.51)	-0.66 (0.79)+	-0.66 (0.79)	-0.49 (0.79)	
Mean proportion gifts for others			0.00 (0.66)	0.00 (0.66)	-0.07 (0.66)	
Mean proportion donations				0.00 (0.05)	0.01 (0.05)	
Age					0.05 (0.02)*	0.05 (0.02)*
F-test	2.67	2.16	1.43	1.07	1.78	3.86*
df1	1	2	3	4	5	2
df2	421	420	419	418	417	421
Adjusted R ²	.00	.01	.00	.00	.01	.01

Note, standard errors are in parenthesis. *** $p \leq .001$, ** $p \leq .01$, * $p \leq .05$, + $p \leq .1$

Table 2.

Regressing (OLS) happiness on key variables - Sample 1a. $N=536$.

	I.	II.	III.	IV.	V.	VI. (final model)
Constant	4.05 (0.05)***	4.05 (0.05)***	4.04 (0.05)***	4.04 (0.05)***	3.86 (0.08)***	3.85 (0.08)***
Min estimated disposable income	2.97*10 ⁽⁻⁵⁾ (0.00)*	2.99*10 ⁽⁻⁵⁾ (0.00)*	2,88*10 ⁽⁻⁵⁾ (0.00)*	2.88*10 ⁽⁻⁵⁾ (0.00)*	3.40*10 ⁽⁻⁵⁾ (0.00)*	3.44*10 ⁽⁻⁵⁾ (0.00)*
Min proportion gifts for yourself		0.06 (0.23)	-0.17 (0.25)	-0.17 (0.25)	-0.11 (0.25)	
Min proportion gifts for others			0.48 (0.21)*	0.49 (0.22)*	0.49 (0.22)*	0.45 (0.19)*
Min proportion donation				-0.01 (0.12)	-0.02 (0.12)	
age					0.06 (0.02)**	0.06 (0.02)**
F-test	4.33*	2.20	3.19*	2.38*	3.47**	5.74***
df1	1	2	3	4	5	3
df2	534	533	532	531	530	532
Adjusted R ²	.01	.00	.01	.01	.02	.03

Note, standard errors are in parenthesis. *** $p \leq .001$, ** $p \leq .01$, * $p \leq .05$, + $p \leq .1$

Table 3.

Regressing (OLS) happiness on key variables - Sample 1b. N=520.

	I.	II.	III.	IV.	V.	VI. (final model)
Constant	4.02 (0.05)***	4.01 (0.05)***	4.01 (0.06)***	4.01 (0.06)***	3.86 (0.09)***	3.88 (0.08)***
Max estimated disposable Income	2.45*10 ⁽⁻⁵⁾ (0.00)	2.40*10 ⁽⁻⁵⁾ (0.00)	2.37*10 ⁽⁻⁵⁾ (0.00)	2.38*10 ⁽⁻⁵⁾ (0.00)	2.68*10 ⁽⁻⁵⁾ (0.00)+	2.78*10 ⁽⁻⁵⁾ (0.00)+
Max proportion gifts on yourself		0.87 (0.90)	1.00 (1.02)	1.00 (1.02)	1.21 (1.02)	
Max proportion gifts on others			-0.23 (0.86)	-0.23 (0.86)	-0.35 (0.85)	
Max proportion donation				0.03 (0.11)	0.00 (0.11)	
age					0.05 (0.02)*	0.05 (0.02)*
F-test	2.64	1.79	1.22	0.93	1.72	3.58*
df1	1	2	3	4	5	2
df2	518	517	516	515	514	517
Adjusted R ²	.00	.00	.00	.00	.01	.01

*Note, standard errors are in parenthesis. *** $p \leq .001$, ** $p \leq .01$, * $p \leq .05$, + $p \leq .1$*

Hypothesis

As this survey is a replication, the hypothesis are strongly oriented towards Dunn et al's (2008) assumptions. For the first two hypothesis, indexes according to the ones in the original survey were used.

H1: Prosocial spending is positively associated to happiness

H2: Personal spending is associated to happiness

According to the original results, it has to be expected, that Hypothesis 1 can be confirmed, while Hypothesis 2 will be rejected. Furthermore, as mentioned above, the practice of

summing up the income categories into indexes has to be scrutinized. Therefore, it seems necessary to look at different spending categories in detail. Divergent from Dunn et al's (2008) original calculations, I decided to differentiate between "gifts for others in the same household" and "gifts for others outside the household", as I assumed, that those might be perceived differently.

H3: Spending on oneself is associated to happiness

H4: There is a positive association between gifts for others in the same household and happiness

H5: There is a positive association between gifts for others outside the household and happiness

H6: There is a positive association between donations and happiness

According to Dunn et al's (2008) original results, Hypothesis 3 is expected to be rejected, while Hypothesis 4 to Hypothesis 6 should be confirmed. For reasons already briefly elucidated in the sections above, this is expected to be valid when calculating with proportions. Thus, all hypothesis were tested using raw values and proportions.

Method

When designing the new survey, the main aim was to adhere to the original one as closely as possible, while complementing in a way that all additional questions could be addressed. The print version of the survey including filters and plausibility checks can be found in Appendix B.

Survey

After seeking participants' consent, they were asked for their individual happiness level. As predefined by Dunn et al (2008), the question "Do you feel happy in general?" was used. Differently to the original survey where a 5-point-likert-Skale (no, rarely, sometimes, most of the

year, yes) was used, participants could now rate their happiness on a 4-point-likert-skale (no, rarely, sometimes, most of the time). This is justified by the assumption that the answer “yes” implies, that the participant feels happy all the time. This can be considered as highly unlikely.

In the next section of the survey, participants were asked about several demographics features. By means of open questions, they had to state their household size and composition. Next, participants were asked to state their personal annual income after taxes, their personal monthly income after taxes and their total monthly household income after taxes. With a 4-point-likert-skale (never, sometimes, regularly, almost always) they were asked, if they have to go beyond their means in order to cover their monthly expenses.

The purpose of the last section of the survey was to gain detailed knowledge about the focal participants' income allocation. This was done by posing open questions. Participants were asked how much of their total monthly household income after taxes is usually spent on mortgage, other loans, fixed expenses, gas, themselves, groceries and ordered meals, gifts for people inside the household, gifts for people outside the household, donations, savings and unlisted items.

The survey was administered in Unipark survey tool, which is an online survey software exclusively for students and employees of universities and colleges. It was launched on Amazon Mechanical Turk. The survey was launched on July 14th 2016. When completed, participants received a code which could be redeemed for an incentive of \$ 0.50. The expenditure caused by that is justified by the benefits of amazon M-Turk. According to Buhrmeister, Kwang and Gosling (2011), already a small compensation can have a major impact on the participants' willingness to participate at and complete a survey. They also found that compensation positively affects the data's quality. The tool is used by a large, stable pool of people, who are willing to participate

in experiments for relatively low pay. Additionally, the pool is quite diverse. Especially when using income questions, this is crucial. Furthermore, as already mentioned, Dunn et al's (2008) sample consisted of American citizens. A comparable sample would be very difficult to acquire on other channels.

Sample

In total, 422 participants completed the survey. The main focus when cleaning the data was to look into the income variables. All participants, whose income variables were considered as inconsistent, were excluded. Unfortunately, when designing the survey, I omitted asking if the participants themselves contributed to the household income. 16 participants stated to have zero personal income. As this number was rather small, those participants were excluded in order to be consistent. These matters will be described more detailed in the discussion section of this paper.

Results

Demographics

After cleaning the data, in total 363 participants remained for conducting the statistical analysis, more than half of them female. For more details on the demographics of the sample, consult Table 4.

Table 4.

Table of Demographics

		<i>N</i>	%
<i>Gender</i>	female	191	52.6
	male	172	47.4
<i>Race</i>	African American	37	10.2
	Asian	34	9.4
	Caucasian	259	71.3
	Hispanic	19	5.2
	Mixed Race	14	3.9
<i>Employment</i>	Unemployed	34	9.4
	Employed part-time	59	16.3
	Employed full-time	207	57
	Self-employed	45	12.4
	Retired	12	3.3
	Other	6	1.7
<i>Education</i>	Some high School or no high school	2	0.6
	High school graduate	48	13.2
	Trade school/some college/associate degree	96	26.4
	College graduate	157	43.3
	advanced degree	60	16.5
<i>Living place</i>	City	192	52.9
	Town	94	25.9
	Small town	67	18.5
	Village	4	1.1
	Farm	3	0.8
	Other	3	0.8
<i>Religion</i>	Atheist or Agnostic	144	39.7
	Buddhist	9	2.5
	Catholic	86	23.7
	Jewish	7	1.9
	Muslim	5	1.4
	Protestant	99	27.3
	Other	13	3.6
<i>Marital status</i>	Single, never married	170	46.8
	Married or living in a domestic partnership	157	43.3
	divorced	31	8.5
	widowed	4	1.1
	other	1	0.3

Descriptives

Before testing the hypothesis with regressions and partial correlations, a closer look was taken into the dataset by calculating some descriptives.

Age. Determining age using the variable birth year, the participants were on average 37.3 years old ($SD = 12.13$), within a range of 18 to 77 years. By putting the participants into age categories according to those in Dunn et al's (2008) sample, the distribution of the samples could be compared with a Chi² Test. The results show, that $X^2(5, N=995) = 42.73$, $p = .00$. This means that the samples significantly differ regarding the age variable. Details can be found in Table A5 in Appendix A.

Happiness. Looking at the happiness variable, it can be found, that most of the participants stated to be happy almost always (55.9 %) or regularly (36.4 %), while 5.2 % stated only to be happy sometimes and 2.5 % never feel happy. As already mentioned, this item was only a 4-point likert scale, while Dunn et al (2008) used a 5-point likert scale also including "yes" as an answer. For that reason, it was not possible to conduct a test of statistical differences on this item. Details can be found in Table A6 in Appendix A.

Income. In the original dataset, six income categories were created by classifying the answers of the annual household income variable into those. This enabled the performance of a Chi² Test. The result was significant with $X^2(5, N=995) = 7.024$, $p = .219$, which shows that the distribution of the income variable in the Dunn enhanced sample does not differ from the original dataset. For details on the distribution of the this variable, consult Table A7 in Appendix A.

As already mentioned, the participants had to answer several items with regard to their income. The purpose of those different income items was to figure out the amount of money each member of a household has for his or her own disposal. As the survey included an item which asked for the household size, findings concerning this division were possible. By dividing the variable “Total Monthly Household Income” by “Household size”, a new variable called “Estimated Per Capita Monthly Household Income” could be created. Consult Table 5 for details.

As an initial test, a matrix of Pearson intercorrelations was created for all income variables. As evident in Table 6, all correlations reached significance. Since the variables “estimated per capita monthly household income” and the variable “total monthly household income” show correlations in a very high degree, the latter was used for all further calculations. This supported the result that amongst all income variables, the “total household income” correlated the strongest with the happiness variable, when doing Spearman correlations ($r_s = .2$, $p = .00$). Find details about correlations between happiness and income variables in Table 7.

Table 5.

Descriptive of the income variables.

Variable	M (SD)	Median	Min	Max
Personal annual income in USD	37139.95 (60480.11)	30000	26	108000
Personal monthly income in USD	2744.38 (3654.97)	2200	0**	49500
Monthly household income in USD	7365.67 (17326.73)	3200	200	15000
Estimated per capital monthly household income in USD*	2685.30 (4704.42)	1500	100	42500

All persons in N=363 are contributors

All income variables after Tax

**Note, this number was is the ration of the monthly household income and the household size*

***this person only indicated personal annual income*

Table 6.

Summary of Pearson intercorrelations: income variables

Variable	1	2	3	4
1. Estimated per capita monthly household income	-			
2. Personal annual income	.29**	-		
3. Personal monthly income	.11*	.18**	-	
4. Total monthly household income	.94**	.30**	.01	-

* $p < .05$ ** $p < .01$

All income variables after tax

Table 7.

Spearman correlations: happiness and income

	Spearman Rho & Sign
Personal monthly income	.13*
Personal annual income	.17**
Total household income	.20**
Estimated per capita household income	.13*

* $p < .05$ ** $p < .01$

All income variables after tax

Spending categories. While analysing the spending categories it became apparent that people in the sample spent the biggest amount of their income on fixed expenses like bills, insurance, rent, education etc., (~ 27 %), followed by mortgage (~ 16 %) and savings (~13 %). For detailed information consult Table 8.

For testing the hypothesis, Dunn et al's spending indexes, which were "personal spending" and "prosocial spending", were recreated. For this, fixed expenses, mortgage, loans, groceries, spent on oneself, and gas were summed up to create an index called "personal spendings", while "gifts for people in the same household", "gifts for people outside the household" and "donations" made up the index "prosocial spendings". The categories "savings"

and “items unlisted” remained uncategorized, as the true nature of those spendings was unknown. Moreover, proportions were calculated as preparation for further analysis, by dividing the spending categories by the total monthly household income.

Table 8.
Spending categories

Variable	Nominal values in USD				Proportion (%) of total household income				Spending category according to Dunn et al
	Mean (SD)	Median in USD	Min in USD	Max in USD	Mean (SD)	Median	Min	Max	
Fixed expenses (bills, insurance, rent, education etc)	1092 (2371)	620	0	41280	0.27 (0.20)	0.25	0	3	Personal
Mortgage	808 (3164)	500	0	59000	0.16 (0.15)	0.18	0	0.8	Personal
Saved	787 (2030)	245	0	25000	0.13 (0.06)	0.16	0	0.82	Uncategorized
Loans	414 (423)	300	0	5000	0.11 (0.10)	0.08	0	1	Personal
Groceries	396 (712)	200	0	8000	0.09 (0.06)	0.11	0	0.74	Personal
Items unlisted in survey	221 (351)	100	0	3000	0.05 (0.03)	0.05	0	0.45	Uncategorized
Spent on yourself	308 (847)	35	0	10000	0.05 (0.01)	0.08	0	0.58	Personal
Donations	151 (284)	100	0	5000	0.04 (0.03)	0.03	0	0.2	Prosocial
Gas	57 (193)	0	0	2000	0.01 (0.00)	0.03	0	0.17	Personal
Gifts people in household	68 (308)	0	0	5000	0.01 (0.00)	0.02	0	0.2	Prosocial
Gifts people outside household	52 (122)	0	0	1000	0.01 (0.00)	0.02	0	0.21	Prosocial

Statistical Analysis

In order to test the hypothesis, stepwise regressions and partial correlations were calculated. Diagnostics were run using SPSS (Version 23.0). Equivalently to Dunn et al’s (2008) original analysis, when looking into P-P diagrams and scatterplots, the data showed violations of homoscedasticity and standard distribution of residues (Field, 2009). Looking into Cook’s d scores

for outliers, none of the participants had to be excluded from the statistical analysis. Furthermore, variance inflation factors (VIFs) were examined. Field (2009) proposes a cut-off of 10 in order to make sure that multicollinearity does not pose a threat on the analysis. VIFs in the data ranged from 1.01 to 5.95. In order to remain as close to the original analysis as possible, I decided to maintain the regressions and partial hypothesis and recognize the non-met diagnostics as limitations to the results.

In all calculations happiness was the independent variable and all hypothesis were tested both using raw numbers and proportions.

For testing the first hypothesis, happiness was regressed using “prosocial spending”, controlling for “total monthly household income” and “personal spending”. As evident in Table 9, none of the results reached significance, and thus Hypothesis 1 cannot be confirmed.

Table 9.

Summary of OLS - Regressing happiness on prosocial spending

	<i>Nominal values</i>			<i>Proportions</i>		
	I.	II.	III.	I.	II.	III.
	B	B	B	B	B	B
Constant	3.42 (0.40)**	3.41 (0.04)**	3.42 (0.04)**	3.43 (0.05)**	3.39 (0.05)**	3.47 (0.12)**
Prosocial spending	0.00 (0.00)	$9.68 \times 10^{(-5)}$ (0.00)	0.00 (0.00)	0.74 (0.79)	0.87 (0.79)	0.80 (0.79)
Total monthly household income		$3.98 \times 10^{(-6)}$ (0.00)	$4.40 \times 10^{(-6)}$ (0.00)		$4.85 \times 10^{(-6)}$ (0.00)*	$4.14 \times 10^{(-6)}$ (0.00)
Personal spending			$-7.48 \times 10^{(-6)}$ (0.00)			-0.09 (0.13)
Adjusted R ²	.01	.01	.01	.00	.01	.01
F-Test	2.86	3.03*	2.21	0.89	3.01	2.17
df1	1	2	3	1	2	3
df2	361	260	359	361	360	359

Note, standard errors are in parenthesis. ** $p \leq .01$, * $p \leq .05$,

Similar to that the previous section, when regressing happiness on “personal spending” and income in order to find out if there is a significant association between “personal spending” and happiness, only income reached significance. Hypothesis 2 therefore also cannot be confirmed. Refer to Table 10 for details.

Table 10.

Summary of OLS - Regressing happiness on personal spending

	<i>Nominal values</i>		<i>Proportions</i>	
	I.	II.	I.	II.
	B	B	B	B
Constant	3.44 (0.04)**	3.42 (0.04)**	3.60 (0.09)**	3.51 (0.11)**
Personal spending	6.33*10 ⁽⁻⁶⁾ (0.00)	6.59*10 ⁽⁻⁷⁾ (0.00)	-0.20 (0.12)	-0.11 (0.13)
Total monthly household income		4.62*10 ⁽⁻⁶⁾ (0.00)*		3.87*10 ⁽⁻⁶⁾ (0.00)
Adjusted R ²	0.00	0.01	0.01	0.01
F-Test	0.73	2.39	2.78	2.74
df1	1	2	1	2
df2	361	360	361	360

*Note, standard errors are in parenthesis. ** $p \leq .01$, * $p \leq .05$,*

For testing Hypothesis 3, partial correlations were used. Looking at the “spent on yourself” category, only the Spearman correlation with happiness reached significance ($r = .13$, $p < .05$). This effect disappeared when controlling for income. Using proportions, no significant result could be found. Therefore, the hypothesis cannot be confirmed. Looking at the other spending categories, when controlling for income, only the category “fixed expenses” was negatively associated to happiness ($r = -.12$, $p < .05$). Details are visible in Table 11.

For Testing Hypothesis 4 to Hypothesis 6, partial correlations were used. After applying Spearman correlations, it became clear that happiness was significantly related to “gifts to others in different households” and “donations”, for both using raw values and proportions. As visible in Table 12, all effects disappeared when controlling for income levels: happiness could neither be

associated to “gifts to others in the same household”, nor to “gifts to others in a different household” or to “donations”. Hypothesis 4, Hypothesis 5 and Hypothesis 6 thus could not be confirmed.

Table 11.

Correlations between happiness and personal spending variables

	<i>Nominal values</i>		<i>Proportions</i>	
	Spearman rho and sign levels	Partial corr. for income and sign	Spearman rho and sign levels	Partial corr. for income and sign
Personal spending	.18**	0.00	-.13*	-.04
Mortgage	.15**	.04	.07	.07
Other loans	.08	.02	.02	.00
Fixed expenses	.08	-.09	-.14**	-0.12*
Gas	.13*	.06	.00	.05
Groceries and ordered Meals	.16**	.10	-.06	.00
Spent on yourself	.13*	.09	.01	.04

* $p < .05$, ** $p < .01$

Table 12.

Correlations between happiness and prosocial spending variables

	<i>Nominal values</i>		<i>Proportions</i>	
	Spearman rho & sign levels	Partial corr. for income and sign	Spearman rho & sign levels	Partial corr. for income and sign
Gift on others in same household	.06	.01	.03	-.04
Gifts on others in different household	.16**	.04	.13*	.09
Donations	.12*	.09	.11*	.06

* $p < .05$ ** $p < .01$

Discussion

Summing up the results of the statistical analysis, Dunn et al's (2008) main findings could not be replicated: no associations between prosocial spending and happiness could be found, neither when looking at the prosocial spending index, nor at "gifts for people inside the same household", "gifts for others in different households" and "donations" as sole categories. Furthermore, only little evidence for any association between personal spending and happiness could be found, which is identical to the original results.

The question arises, why the results differ from those of previous research. Yet, it has to be mentioned that some limitations need to be taken into consideration when interpreting the results. First, due to the fact that the use of Amazon Mechanical Turk is linked to costs, the sample size for this survey was restricted. Looking at Table 12, effects for the spending categories "gifts for others in different households" and "donations" were both positive. It is possible that the fact that they did not reach significance is due to the smaller sample size.

Asking people about their income situation is always rather delicate. In the present case, it was notably challenging to find the balance between gaining all the necessary knowledge for answering the hypothesis and, at the same time, making sure that the survey's degree of difficulty to answer is tolerable. Failing on the latter would most likely have two possible outcomes. First, it could provoke participants to abort the survey, which would not have any impact on the quality of the data. Second and causing more harm is the fact that participants receive \$ 0.50 for completing the survey: instead of answering the questions conscientiously, it is possible that participants made up sums because they either did not have the necessary information, or they were not willing to put as much effort into providing the correct data.

I attempted to narrow this problem down with a data cleaning procedure. If the provided answers seemed unrealistic or inconsistent, which means that the personal annual income was

smaller than the personal monthly income, the total monthly household income was smaller than the personal monthly income or the same size, if more than one person contributed to the household income or if all income variables or spending categories were the same size or zero then the participant was excluded. However, if the figures seemed realistic it was not possible to detect whether or not the questions were answered truthfully.

As already mentioned a lack of knowledge concerning the participants' contribution to their household income occurred due to not covering this point within the conducted research. Hence, a variable called "non-contributor" was manually created, which includes participants with zero personal income. As only sixteen persons fell into this category, I decided to exclude them in order to avoid contortions.

Another limitation of this study worth mentioning is that there were violations of the assumptions of homoscedasticity and normal distribution of residues in the data set. Also, as visible in Table A5 in Appendix A and already mentioned above, the data of the original survey and of my survey differed regarding age categories. Luckily, the samples did not differ concerning the income variable, which can be considered of higher importance.

The fact that the findings could not replicate results from previous research, makes future research desirable if not necessary. Especially the problem that capturing a detailed insight into income and spending behavior of participants could be solved by conducting a large scale survey, in which participants report their daily income and spending in shape of a diary. This would ensure higher accuracy of the data.

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Appendix

Appendix A - Tables

Table A1.

Regression predicting happiness. Reproduction of original results and revisions by Dunn et al (2008)

Summary of original results and revision of calculations done by Dunn et al

	Reproduced results (N=632)	Revision by Dunn et al (N=630)	Revision by Dunn et al (N=629)
Regression	Standardized beta (β)	Standardized beta (β)	Standardized beta (β)
Personal spending	-.02		
Prosocial spending	.11*	.09 (P < .04)	.09 (P < .04)
Regression including In- come			
Personal spending	-.04		
Prosocial spending	.10*		
Income	.11**		

Supplement to reproduced results (N=632)

Regression	Unstandardized beta (B)	95% CIs
Constant	4.07**	3.99; 4.15
Personal spending	-6.58*10 ⁽⁻⁶⁾	0.00; 0.00
Prosocial spending	0.00**	0.00; 0.00
Regression including In- come		
Constant	3.91**	3.77; 4.05
Personal spending	-1.57*10 ⁽⁻⁵⁾	0.00; 0.00
Prosocial spending	0.00*	0.00; 0.00
Income	0.05**	0.02; 0.09

*Note, standard errors are in parenthesis. ** $p \leq .01$, * $p \leq .05$*

Table A2.

Presenting the three new samples after estimating mean (sample 1), minimum (sample 1a) and maximum (sample 1b) available monthly household income.

	Sample 1	Sample 1 a	Sample 1 b
	N, Excluded (income category 1 and 6)	N, only excluding income category 1 and calculate the MINIMUM estimated monthly income	N, only excluding income category 6 and calculate the MAXIMUM estimated monthly income
Male	182	247	222
Female	242	289	298
Total	424	536	520

Table A3.

Correlation coefficients and the corresponding *p*-values in Dunn et al's (2008) complete sample and sample 1

Correlation	Results	
	Sample Dunn et al (N=632) 95 % CI	Sample 1 (N=424) 95 % CI
Happiness (S)		
Combined household income	.11** [.03; .19]	.17** [.08; .26]
Monthly estimate income	.11** [.03; .19]	.17** [.08; .26]
Disposable income	.13** [.05; .21]	.16** [.07; .25]
Happiness (S)		
Personal spending	.04 [-.04; .11]	.05 [-.04; .14]
Prosocial spending	.12** [.04; .2]	.12** [.03; .21]
Proportion gifts for oneself	.07 [-.08; .15]	.04 [-.06; .13]
Proportion gifts for others	.05 [-.03; .13]	.01 [-.09; .11]
Proportion donation	.12** [.04; .2]	.1* [.01; .19]
Proportion prosocial spending	.09* [.01; .17]	.05 [-.05; .14]
Income (S)		
Personal spending	.28** [.21; .35]	.33** [.24; .41]
Prosocial spending	.22** [.15; .29]	.24** [.15; .33]
Prosocial spending (P)		
Personal spending	.44** [.38; .5]	.12** [.03; .21]
Disposable income (P)		
Personal spending	-.62** [-.67; -.57]	-.78** [-.81; -.74]
Prosocial spending	-.18** [-.25; -.1]	-.35** [-.35; .43]
Proportion gifts for yourself (P)		
Disposable income	.05 [-.03; .13]	.04 [-.06; .13]
Proportion gifts for others (P)		
Personal spending	-.09* [-.16; -.01]	.03 [-.07; .12]
Prosocial spending	.04 [-.04; .12]	.07 [-.03; .16]
Disposable income	.05 [-.03; .13]	.04 [-.06; .13]
Proportion gifts for oneself	.49** [.43; .55]	.76** [.71; .8]
Proportion donation (P)		
Personal spending	-.03 [-.11; .05]	-.03 [-.07; .12]
Prosocial spending	-.31** [-.38; -.24]	-.41** [-.49; -.33]
Disposable income	.05 [-.03; .13]	.05 [-.04; .14]
Proportion gifts for others	.06 [-.02; .14]	.07 [-.03; .16]

Note, ** $p \leq .01$, * $p \leq .05$, (S). Spearman, (P). Pearson

Table A4.

Comparing descriptive statistics of complete sample, sample 1, 1a and 1b.

	<i>Total sample</i>				<i>Sample 1</i>			
	Mean	SD	Min	Max	Mean	SD	Min	Max
Age	2,90	1,60	1	6	2,91	1,63	1	6
Gender	1,55	0,50	1	2	1,57	0,5	1	2
Income	3,37	1,71	1	6	3,21	1,11	2	5
Happiness	4,10	0,80	1	5	4,01	0,78	2	5
Disp. income	2324	2310	-21458	6633	2194	2233	-21458	6042
Prop. gifts on yourself	0,02	0,07	-1,21	0,51	0,02	0,07	-1,21	0,34
Prop. gifts on others	0,02	0,13	-2,40	0,60	0,02	0,09	-1,21	0,51
Prop. donation	0,01	0,01	-14,40	1,29	0,00	0,71	-14,4	0,69
Prop. prosocial spending	0,03	0,03	-14,40	1,30	0,02	0,72	-14,4	0,78

	<i>Sample 1a</i>				<i>Sample 1b</i>			
	Mean	SD	Min	Max	Mean	SD	Min	Max
Age	2,92	1,59	1	6	2,88	1,63	1	6
Gender	1,54	0,5	1	2	1,57	0,5	1	2
Income	3,78	1,51	2	6	2,8	1,3	1	5
Happiness	4,11	0,78	1	5	4,08	0,8	1	5
Disp. Income	2616	2260	-21458	6633	1918	2248	-21458	6041
Prop. Gifts on yourself	0,02	0,07	-1,21	0,45	0,02	0,07	-1,21	0,51
Prop. Gifts on others	0,02	0,14	-2,4	0,60	0,02	0,09	-1,21	0,51
Prop. donations	0,00	0,63	-14,4	0,68	0,00	0,64	-14,4	1,29
Prop. Prosocial spending	0,02	0,65	-14,4	0,9	0,03	0,65	-14,4	1,3

Table A5

Age categories corresponding to Dunn et al (2008)

Age Category	<i>Sample Dunn et al</i>		<i>Sample survey enhanced</i>		Test of statistical differences Chi ² Test
	N	%	N	%	
18-29	151	24.90	107	29.50	$\chi^2 (5, N=995) = 42.73$, $p = .000$
30-39	158	25.00	131	36.10	
40-49	102	16.10	55	15.20	
50-59	105	16.60	48	13.20	
60-69	58	9.20	17	4.70	
70-	58	9.20	5	1.40	
Total	632	100.00	363	100.00	

Table A6

Descriptives happiness general

	<i>Sample Dunn et al</i>		<i>Sample survey enhanced</i>	
	N	%	N	%
never	2	0.30	9	2.50
sometimes	21	3.30	19	5.20
regularly	99	15.70	132	36.40
almost always	299	47.30	203	55.90
Yes	211	33.40		
total	632	100.00	363	100.00

*Table A7**Income categories corresponding to Dunn (annual household income after tax)*

	Dunn et al		<i>Sample Survey enhanced</i>		Test of statistical differences
	N	%	N	%	Chi ² Test
< 20000	96	15.2%	60	16.5%	$\chi^2 (5, N=995) = 7.024, p = .219$
20001-35000	148	23.4%	82	22.6%	
35001-50000	120	19.0%	89	24.5%	
50001-65000	77	12.2%	35	9.6%	
65001-80000	79	12.5%	34	9.4%	
> 80001	112	17.7%	63	17.4%	
Total	632	100.0%	363	100.0%	

*Appendix B - Survey**Complete survey with filters and plausibility checks***Welcome,**

and thank you for your willingness to participate in our survey. It will approximately take you 10 minutes. In this survey, we are interested in your household income and how this income is allocated. Your participation is part of a research study conducted by Linda Dezső at the University of Vienna, Austria.

Procedure:

You will answer questions about your household size and about your monthly and yearly household income. Then, we want to gain information on how this income is allocated by asking you to estimate your mean spendings on rent, mortgages, loans, utilities, groceries, leisure, etc.

Participant requirements:

Participation in this study is limited to individuals that are at least 18 years old.

Confidentiality:

Your IP address will not be captured. No personal identifiers will be collected.

Compensation:

You will be paid \$ 0.5 for completing this survey. Once you completed, you will be given an unique 16 digits completion code. You will need to enter this code to the comment field in order to receive your payment.

Right to ask questions and contact information:

If you have any questions concerning this study, please feel free to ask them by contacting Linda Dezső (linda.dezsoe@unvie.ac.at).

I have read and understood the consent form above

- ☐ No
☐ Yes

I am at least 18 years of age

- ☐ No
☐ Yes

I want to participate in this study

- ☐ No
☐ Yes

2 Happiness general**Do you feel happy in general?**

- ☐ no
☐ rarely
☐ sometimes
☐ most of the time

3 Demographics

Plausibility checks:

The value of the field **Birth (v_153)** isn't within the range of **1916** and **1998** .

(**Race (v_162)** == Other, please specify
AND Other, please specify (v_163) <= a)
OR (Employment (v_160) == Other, please specify
AND Other, please specify (v_159) <= a)
OR (Living place (v_154) == Other, please specify
AND Other, please specify (v_155) <= a)
OR (Religion (v_156) == Other, please specify
AND Other, please specify (v_157) <= a)
OR (Marital status (v_8) == Other, please specify
AND Other, please specify (v_165) <= a)

Your year of birth:

Are you:

- ☐ Male
- ☐ Female

Are you:

- ☐ African American
- ☐ Asian
- ☐ Caucasian
- ☐ Hispanic
- ☐ Mixed race
- ☐ Other, please specify

Are you currently:

- ☐ Unemployed
- ☐ Employed part-time
- ☐ Employed full-time
- ☐ Self-employed
- ☐ Retired
- ☐ Other, please specify

Your highest level of education:

- ☐ Some high school or no high school
- ☐ High school graduate
- ☐ Trade school/Some college/Associate degree
- ☐ College graduate
- ☐ Advanced degree

Where do you currently live?

- ☐ City
- ☐ Town
- ☐ Small town
- ☐ Village
- ☐ Farm
- ☐ Other, please specify

Your religion:

- ☐ Atheist or Agnostic
- ☐ Buddhist
- ☐ Catholic
- ☐ Jewish
- ☐ Muslim
- ☐ Protestant
- ☐ Other, please specify

Your marital status:

- ☐ Single, never married
- ☐ Married or living in a domestic partnership
- ☐ Divorced
- ☐ Widowed
- ☐ Other, please specify

4 Household members**Plausibility checks:**

household size (v_168) < 1

Trigger:

Page trigger - Trigger to income - Condition: if(v_168 = 1) - Position of execution: "After submitting page, after filter"
Target page:: Income

How many people are living in your household?

Please include yourself and everyone with whom you share your household. This could be your partner, children, parents, other relatives, friends etc. Please only indicate a number in the box below.

5 Questions about household composition

You indicated that there are #v_168# people in your household **including you**.

Now we are interested in the composition of your household. Indicate how many people live in your household in each categories listed below.

Adults. Make sure you include yourself.

Minors

Other

5.1 Filter Filter

	v_169 + v_170 + v_171	(From page :)	greater
or	v_168 household size	How many people are living in your household? - household size (From page 4: Household members)	less
	v_169 + v_170 + v_171	(From page :)	
	v_168 household size	How many people are living in your household? - household size (From page 4: Household members)	

5.1.1 Indicated household size 1

Trigger:

Page trigger - Trigger to questions about household composition - Condition: - Position of execution: "After submitting page, after filter"
Target page:: Questions about household composition

Indicating the composition of your household resulted in a **smaller** number than what you indicated when we asked about how many people live in your household including you.

Please go back by clicking to Continue and fix this error.

Indicating the composition of your household resulted in a **greater** number than what you indicated when we asked about how many people live in your household including you.

Please go back by clicking to Continue and fix this error.

6 Questions about non/contributors

You indicated that there are **#v_168#** people in your household **including you**.

Please indicate how many people...

Contribute to
your monthly
household
income

Do not
contribute to
your monthly
household
income

6.1 Filter Filter

v_180 + v_181	(From page :)	greater
or v_168 household size	How many people are living in your household? - household size (From page 4: Household members)	less
v_180 + v_181	(From page :)	
v_168 household size	How many people are living in your household? - household size (From page 4: Household members)	

6.1.1 indicated household size 2

Trigger:

Page trigger - Trigger to questions about non/contributors - Condition: - Position of execution: "After submitting page, after filter"
Target page:: Questions about non/contributors

Indicating the distribution of those who do and do not contribute to your household income resulted in a **smaller** number than what you indicated when we asked about how many people live in your household including you.

Please go back by clicking to Continue and fix this error.

Indicating the distribution of those who do and do not contribute to your household income resulted in a **greater** number than you indicated when we asked about how many people live in your household including you.

Please go back by clicking to Continue and fix this error.

7 Income

Please indicate your personal annual income after taxes.

Provide your best guess if you don't know the exact number. If your yearly income changed or keeps on changing, provide an average of the past few years' annual incomes.

Please indicate your personal monthly income after taxes.

Provide your best guess if you do not know the exact number. Also, if you are paid by the hour, weekly, etc. please provide an estimate of the average monthly income you had in the past few months.

Please indicate the total monthly household income after taxes of your household in each month.

Please provide your best guess.

**In your experience, do you have to go beyond your means in order to cover your monthly expenses?
That is, do you have to ask for loans from friends, family or from institutions to make ends meet?**

- ☐ never
- ☐ sometimes
- ☐ regularly
- ☐ almost always

8 Income allocation

Now we are interested in how your household monthly income is allocated.

We give you a list of possible spendings and please indicate your **monthly spendings** on each item.

You can also indicate 0 if you do not spend on an item listed. You can only enter integers.

Please make sure that the sum adds up to your indicated total monthly household income after taxes.

Spent on
mortgage

Spent on other
loans (cars,
durable goods,
student loans,
etc.)

Spent on fixed
expenses (bills,
insurance, rent,
education,
transit pass,
etc.)

Spent on gas	
Spent on yourself (clothes, cosmetics, hobbies, club memberships, going out, restaurants, entertainment, books, music, movies, etc.)	
Spent on groceries and ordered meals (please do not include spending on eating out)	
Spent on gifts for people in your household	
Spent on gifts for people outside of your household (this can also be inviting friends for drinks, meals, etc)	
Spent on donations (charity, church, projects, etc.)	
Saved	
Spent on items unlisted here	

Your indicated total household monthly income: #v_14#

8.1 Filter Filter

v_18 + v_19 + v_20 + v_21
+ v_22 + v_23 + v_24 +
v_25 + v_26 + v_65 +
v_183 (From page :) greater

v_14 Total monthly household income after tax

Please indicate the **total monthly household income after taxes** of your household in each month. - Total monthly household income after tax (From page 7: Income)

8.1.1 Filter

Trigger:

Page trigger - Trigger spendings - Condition: if((v_122 = 1)) - Position of execution: "After submitting page, after filter"
Target page:: Income allocation

The numbers you entered add up to more than your indicated monthly household income. Are these numbers correct?

- ☐ No
☐ Yes
-

9 Endpage with completion code

Thank you for your participation!

Your completion code is:
#v_46#

Please enter the completion code in the comment field in order to receive your payment. Remember, that we can only pay you if you enter your completion code. Once you copied your completion code please close the window.

10 Endpage without completion code

You did not consent participating in this survey.
Thanks and bye.

Appendix C - Abstract

Abstract

Happiness research, especially in the context of income, has gained significant popularity during previous decades. Pioneers in this field were Dunn, Aknin and Norton (2008) with their paper “Spending Money on Others promotes Happiness”, which identified coherences between prosocial spending and happiness. Taking a closer look at the methodology and the original data set has raised some issues, which could not be satisfactorily dealt with when using existing materials. Therefore, a new survey has been set up and published on Amazon Mechanical Turk. This survey focused on gaining more detailed knowledge about the participants’ income and on how it is spent. Four hundred twenty-two US citizens participated in the online survey. Regressions and partial correlations were calculated in order to find out, if prosocial spending is positively associated to happiness. Dunn et al.’s (2008) results, however, could not be replicated. The data neither revealed evidence for any association between happiness and prosocial spending (gifts for others in the same household, gifts for others in different household and donations), nor a connection between happiness and personal spending. The latter was consistent with the findings in the original paper.

Keywords: *happiness, prosocial spending, income, money*

*Appendix D - Zusammenfassung**Zusammenfassung*

Glücksforschung, besonders im Zusammenhang mit Einkommen, hat in den letzten Dekaden große Popularität erreicht. Dunn, Aknin & Norton (2008) waren mit ihrem Paper „Spending money on Others promotes Happiness“, in welchem ein Zusammenhang zwischen Prosozialen Aufwendungen und Glück gefunden wurden, Pioniere in diesem Feld. Der genauere Blick in die Methodologie und das Datenset wirft Fragen auf, welche anhand vorliegenden Materialien nicht zufriedenstellend beantwortet werden können. Aus diesem Grund wurde eine neue Online-Umfrage aufgesetzt und auf Amazon Mechanical Turk veröffentlicht. 422 Personen nahmen daran teil. Die Umfrage zielte darauf ab, detaillierteres Wissen über Einkommen und Konsumverhalten der TeilnehmerInnen zu erlangen. Die Hypothese, dass ein Zusammenhang zwischen Prosozialen Aufwendungen und Glück besteht, wurde anhand von Regressionen und Partiellen Korrelationen getestet. Dabei konnten Dunn et al.'s (2008) Ergebnisse nicht repliziert werden. Im Datenset konnte kein Hinweis auf einen möglichen Zusammenhang zwischen Glück und prosozialen Aufwendungen (genau gesagt Geschenke für Personen im selben Haushalt lebend, Geschenke für Personen wohnhaft außerhalb des Haushalts und Spenden) gefunden werden. Außerdem gibt es auch keinen Hinweis auf eine Assoziation von Glück und persönlichen Ausgaben. Letzteres war konsistent mit den Ergebnissen der Originalstudie.

Stichwörter: Glück, Prosoziale Aufwendungen, Einkommen, Geld

*Appendix E - Curriculum Vitae***Lebenslauf****Persönliche Daten**

Name: Julia Hölzl, BSc BSc

Adresse: Hardtmuthgasse 97/2/21, 1100 Wien

Geburtsdatum: 26.10.1990, Linz

Ausbildung

Seit 2014: Masterstudium Psychologie, Universität Wien
Schwerpunkt Angewandte Psychologie: Arbeit, Bildung & Wirtschaft

2011-2016: Bachelorstudium Betriebswirtschaft, Universität Wien

2015: Linköpings universitet (LiU), Schweden
ERASMUS-Aufenthalt im Zuge des BWL Studiums

2010-2013: Bachelorstudium Psychologie, Universität Wien

2005-2010: Bundeshandelsakademie Perg

Berufserfahrung & Praktika

Seit 01/2017: **BAWAG P.S.K. Wien, Kundenservice** - Teilzeitstelle

09/2016-12/2016: **UniCredit Bank Austria, Wien, Learning, Development & Employer Branding** – Vollzeitpraktikum

- Unterstützung beim technischen Support der Performance Management Prozesse (PM, EDP, TMR)
- Mitarbeit bei der Organisation von Veranstaltungen
- Erstellung von Präsentationen (PowerPoint) und Report (Excel) inkl. Daraus resultierenden Statistiken
- Erarbeitung von KPIs für das Talente Management
- Unterstützung der Kommunikation, Teilweise auf Englisch

- Unterstützung des Recruiting (Durchsicht und Ablage von Bewerbungen, Durchführung von PraktikantInnen-Castings)
- 2014–2016: **Akademie der Wirtschaftstreuhand GmbH, Wien, Seminarbetreuung** – geringfügig
- 2015: **Movement GmbH, Wien, Projekt Early Intervention 50+** - 240-stündiges Praktikum
- Kennenlernen einer Testbatterie
 - Kennenlernen von diversen Testmanualen von Persönlichkeitstests
 - Unterstützung bei der Testbetreuung
 - Dateneingabe
 - Auswertung von Testergebnissen
 - Teilnahme an Beratungsgesprächen, Testrückmeldungsgesprächen, Informationsveranstaltungen und Fallbesprechungen
 - Recherchetätigkeiten
 - Empfangstätigkeit
- 2013–2014: **Manpower Österreich, Wien, Küchenhilfe** – geringfügig
- 2011, 2012, 2013: **Greisinger Fleisch-, Wurst- und Selchwaren GmbH, Münzbach/OÖ** – Ferialarbeit in der Abteilung Verpackung
- 2010: **Gasthaus „Klosterhof“, Baumgartenberg/OÖ** – Küchenhilfe, geringfügig
- 2008: **Bezirksbauernkammer Perg/OÖ** - Ferialpraktikum, Bürotätigkeiten
- 2007: **Dr. Krückl & Partner GmbH, Perg/OÖ** - Ferialpraktikum, Bürotätigkeiten

Sonstige Kenntnisse

Sprachen:	Englisch (Level C1)
	Französisch (Level B2)
	Schwedisch (Level A1)
Führerschein:	Klasse B