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Life satisfaction and the consumption values of partners and friends: Empirical evidence from German panel survey data

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Abstract

This empirical research note uses a large-scale household panel survey for Germany to assess the consumption values of partners and friends. For this purpose, reported individual life satisfaction (as proxy for utility) is regressed on being in a partnership, on the number of friends, on the net household income, and on other covariates. The results of pooled and fixed effects regressions indicate sizeable consumption values for partnerships and friends of several ten thousands Euros per year in terms of net household income. The estimated consumption values are significantly smaller when taking non-linearity (decreasing marginal utility) of household income into account.

1. Introduction and Estimation Strategy

The interest of economists in empirical happiness studies has remarkably increased since the 1990s (for reviews see, for example, Frey and Stutzer 2000, Frey and Stutzer 2002, and Stutzer and Frey 2012). The most obvious reason is that individual happiness, or let us alternatively say life satisfaction or subjective well-being, is related to the utility concept in economics. Whereas it is easy to ask people about their general satisfaction with life or special domains, it is difficult to get answers about the number of "utils" which is maximized by rational people. Thus, the former allows to study empirically the determinants of utility, for which satisfaction serves as a proxy, instead of limiting empirical investigations to the observed choices based on the theoretical construct of utility maximizing behavior.

Blanchflower and Oswald (2004, p. 1361) formulate a reported well-being function $r = h(u(\cdot)) + e$, which comprises an error term e and a function $h(\cdot)$ which relates actual well-being or utility $u(\cdot)$ to the reported level of well-being r. The reported well-being function can then easily be estimated by regressing general life satisfaction on variables of interest that might affect utility. A conceptual problem arises, because life satisfaction variables usually take on few integers (e.g., 11-point Likert scale from zero to ten) that can have different meanings for individuals. Usually the ordinality of the satisfaction variable would call for ordered probit or logit models (Blanchflower and Oswald 2004). In order to account for the subjectivity of the reported well-being r, regression models taking into account unobserved heterogeneity via the inclusion of individual fixed effects are preferable as they estimate the impact of changes in time variant observable characteristics on changes in reported well-being. Ferrer-i-Carbonell and Frijters (2004) discuss these methodological issues at length and conclude "that assuming ordinality or cardinality of happiness scores makes little difference, whilst allowing for fixed-effects does change results substantially (Ferrer-i-Carbonell and Frijters 2004, p. 641)." Since consistent fixed effects estimators for ordered response models are not available for short panel data, fixed effects linear regressions with ordinary least squares (OLS) are an adequate econometric choice.

In this empirical research note, I focus on two important factors in social life, namely partnerships and friends, from which most people generate utility or higher life satisfaction. If no utility would be generated from partnerships and friends, we should not observe that people choose to have a permanent partner and friends and even invest time and money in these social relationships (e.g., search costs, presents). I do not aim to analyze the potential channels through which partnerships and friends might affect utility (e.g., emotions, fun, sex, status, support), which can probably be answered better by psychologists and sociologists. Instead, the aim of my micro-econometric investigation is to estimate the consumption values of partnerships and friends in terms of net household income as proxy for monetary consumption. Such consumption values can be computed from life satisfaction estimates also for non-market goods such as social relationships. In a ceteris paribus interpretation, the relation of any two estimated coefficients can be interpreted in terms of tradeoffs to maintain a constant level of satisfaction or utility, which is in principal the marginal rate of substitution. For this purpose, I estimate a reported well-being function as basically stated in equation (1) with OLS. The index i stands for person i and t for year t. Greek letters indicate coefficients to be estimated. S denotes the level of general life satisfaction, P is a dummy variable for being in a partnership, F denotes the number of friends, Y denotes the net household income, and X is a vector with observable characteristics. Several specifications are estimated that exclude or include the number of friends as a count variable, the

number of friends as separate categories and the squared term of household income to allow for non-linearity (decreasing marginal utility). Moreover, the error term can be split into a person-specific time-invariant component v (fixed effect) and the usual remaining error term w ($e = v + w$).

$$S_{it} = \beta^P P_{it} + \beta^F F_{it} + \gamma_1 Y_{it} + \gamma_2 Y_{it}^2 + \delta X_{it} + (v_i + w_{it}) \qquad (1)$$

Based on the estimated coefficients β^P, β^F, and γ, the consumption values of partnerships and friends are simply computed by (β / γ_1) in the linear household income specification and by ($\beta / (\gamma_1 + 2\gamma_2 Y)$) in the non-linear specification. Thus, a person can give up (β / γ_1) or ($\beta / (\gamma_1 + 2\gamma_2 Y)$), respectively, of his household income for a partnership or for a friend in order to maintain a constant level of satisfaction or utility, which can alternatively be interpreted as the willingness to pay or as the shadow prices for partnerships and friends. Topics, for which the so called "life satisfaction approach" to estimate consumption values has been applied previously, include crime (Powdthavee 2005), airport noise (van Praag and Baarsma 2005), civil conflicts (Welsch 2008), droughts (Carroll *et al.* 2009), terrorism (Frey *et al.* 2009), air quality (Luechinger 2009), and health (Powdthavee and van den Berg 2011). Overall, surprisingly few authors have however used their results to compute such consumption values, despite the large number of studies examining the determinants of life satisfaction.

Three previous studies, which are related to my research note, are Blanchflower and Oswald (2004), Powdthavee (2008), and Oswald and Powdthavee (2008). Blanchflower and Oswald (2004, pp. 1371-1373) estimate for the USA the value of main life events such as being widowed or a marital separation of up to 100,000 US Dollars per year in terms of household income. Powdthavee (2008) more explicitly analyses the values of several factors with UK data with a main focus on social interactions. He finds, for example, consumption values for events such as meeting with friends and relatives of up to 85,000 GB Pounds and for talking to neighbors of up to 40,000 GB Pounds per year in terms of household income. Oswald and Powdthavee (2008) estimate compensatory values of deaths of relatives, partners, and friends for the UK using psychological distress instead of life satisfaction. They report yearly compensatory values between 110,000 and 312,000 GB Pounds for the death of the partner and between 8,000 and 51,000 GB Pounds for the death of a friend. In a before-after comparison of the psychological distress level, they can however observe a quite fast adaption process to the level before the death has occurred. My empirical analysis differs in three major ways from previous studies. First, I use large-scale household panel data from Germany (SOEP), which might differ from Anglo-Saxon countries. Second, I treat partners and friends as normal goods that enter directly the utility or satisfaction function instead of analyzing events. Third and more general, I account explicitly for non-linearity (decreasing marginal utility) of household income when computing consumption values, which has been largely neglected by previous studies that use only a linear household income or a log income variable in their life satisfaction estimates.

2. Data and Variables

In order to estimate equation (1), I use the German Socio-Economic Panel (SOEP). The SOEP is an annual survey of private households and persons in Germany and has previously been used in the context of happiness research (e.g., Ferrer-i-Carbonell and Frijters 2004; Frijters *et al.* 2004; Wagner *et al.* 2007; Wunder *et al.* 2013). It contains a stable set of core questions asked every year (e.g., employment, education, health) and special yearly topics. Even though information about satisfaction with life in general and about partnerships are available since the start of the survey in 1984, information about the number of close friends is only available for the years 2003 and 2008 so that the analysis is limited to these two years. The sample is further restricted to individuals, who are between 18 and 70 years of age, and have no missing values in the used variables. In total, 29304 observations of 19332 persons remain in a pooled cross sectional setting, which is used for the pooled OLS regressions, and 19944 observations of 9972 persons remain in a balanced panel, which is used for the individual fixed effects OLS regressions.

Table I contains descriptive statistics for the variables of interest and the control variables. Life satisfaction (S) is measured on a 11-point Likert scale ranging from completely dissatisfied with life (0) to completely satisfied with life (10) and has an average value of 7 in both estimation samples. More than 80 percent of the observations are in a serious/permanent partnership (P) that includes married not separated) and unmarried couples as well as living together and not living together couples. The average number of close friends (F) is about 4.4. About 6 percent of the observations report that they do not have any close friends. About a quarter reports one or two friends, nearly a third reports three or four friends, and another fifth reports five to six friends. Only about 6 percent have seven or eight, about 7 percent have nine or ten friends, and less than 4 percent have eleven or more friends (with a maximum of 80 friends). Monthly net household income (Y) is expressed in real Euros for the year 2003 and on average approximately 2,850 Euros per month.[1] The last column of Table I presents within standard deviations that are of special importance in the fixed effects models as they only exploit the within variance. Although the within standard deviations are smaller than the between standard deviations, the within variance of the variables of interest seems large enough to justify fixed effects models. In addition to the variables of interest, the regressions include a set of important control variables (X), namely the number of persons in the household, a female dummy, a German citizenship dummy, age in years, squared age, the subjective health status, the employment status (non-employment (reference), unemployment, employment), secondary schooling degrees (low (reference), middle, high), apprenticeship degree, university degree, a dummy for the year 2008, and 16 federal state dummies. Note that these variables serve only to control for observed differences between and within persons. Hence, we are not interested in the consistency and efficiency of their estimated parameters, for which the low within variance for characteristics such as German citizenship or education would be an issue in the fixed effects regressions.

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[1] The SOEP includes a consumer price index that indicates an increase by 8.342 percent from the year 2003 to the year 2008. The exchange rate on May 30, 2003, was 1.1822 US Dollar for 1 Euro.

Table I: Descriptive statistics for variables of interest and control variables

	Pooled cross sections (n=29304)		Balanced panel (n=2*9972=19944)		
	Mean	Overall SD	Mean	Overall SD	Within SD
Life satisfaction in general [S] (0: completely dissatisfied, 10: completely satisfied)	7.0097	1.7139	6.9976	1.7092	0.8725
Serious/permanent partnership [P] (dummy)	0.8224	0.3821	0.8387	0.3678	0.1597
Number of close friends [F] (count ranging from 0 to 80 in sample)	4.4389	3.7845	4.4107	3.6884	2.0114
Number of close friends [F] (categories (dummies) with reference "no friends")					
One or two friends	0.2542	0.4354	0.2569	0.4369	0.2621
Three or four friends	0.3169	0.4653	0.3202	0.4666	0.3081
Five or six friends	0.2028	0.4021	0.2025	0.4018	0.2635
Seven or eight friends	0.0571	0.2320	0.0553	0.2286	0.1555
Nine or ten friends	0.0715	0.2576	0.0703	0.2557	0.1683
Eleven or more friends	0.0387	0.1930	0.0380	0.1911	0.1223
Monthly net household income in thousand Euros [Y] (real Euros 2003)	2.8440	2.0075	2.8510	1.8811	0.8091
Control variables [X]:					
Number of persons in household	2.7755	1.2422	2.7580	1.2319	0.4813
Female (dummy)	0.5147	0.4998	0.5240	0.4994	0.0000
German citizenship (dummy)	0.9650	0.1839	0.9660	0.1814	0.0343
Age in years	45.1076	14.0504	45.9616	12.7670	2.5014
Subjective health status (1: very good, 5: bad)	2.5258	0.9057	2.5358	0.8859	0.4395
Employment status (categories (dummies) with ref. "non-employment"):					
Unemployment (dummy)	0.0715	0.2577	0.0737	0.2612	0.1521
Employment (dummy)	0.6792	0.4668	0.7078	0.4548	0.2216
Secondary schooling degree (categories (dummies) with ref. "low" ("Hauptschule"))					
Middle secondary schooling degree ("Realschule") (dummy)	0.3554	0.4787	0.3648	0.4814	0.0332
High secondary schooling degree ("Abitur") (dummy)	0.3079	0.4616	0.3070	0.4613	0.0328
Apprenticeship degree (dummy)	0.6997	0.4584	0.7250	0.4465	0.0817
University degree (dummy)	0.2263	0.4185	0.2424	0.4286	0.0777
Year 2008 (dummy)	0.4612	0.4985	0.5000	0.5000	0.5000

Data: SOEP 2003+2008.

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3. Econometric Results

The regression results are presented in Table II and the corresponding consumption values of partnerships and friends are presented in Table III. Three specifications have been estimated without fixed effects for the pooled cross sections and with fixed effects for the smaller balanced panel. The first specification treats the number of friends as continuous variable, whereas the second specification includes categories for the number of friends with having no close friends as reference group. The third specification includes an additional squared term of monthly net household income to account for non-linearity (decreasing marginal utility) of income.

The first row in Table II shows that a serious/permanent partnership is associated with approximately 0.4 points higher life satisfaction across all regressions. The number of close friends in the first specification increases life satisfaction on average by 0.034 points per friend in the pooled OLS and by 0.019 points per friend in the fixed effects OLS regressions. The second specification includes categories for the number of friends that allow to analyze non-linearity of the effects, which might stem from decreasing marginal utility. Persons, who have one or two friends, are approximately 0.1 points more satisfied than the reference group without close friends in the pooled regressions, whereas no significant effect is estimated for having one or two friends in the fixed effects regressions. Having even more friends is associated with higher life satisfaction in the pooled and the fixed effects regressions; with weak evidence for decreasing marginal utility from having friends. The results further indicate that household income significantly increases life satisfaction on average by about 0.085 points per 1,000 Euros additional monthly net income in the pooled regressions and by about 0.039 points in the fixed effects regressions. The third specification further supports the notion of decreasing marginal utility of income as the estimated coefficients for the squared term are negative. The control variables have mostly the impact known from previous studies. For example, females and persons with German citizenship report on average higher levels of life satisfaction in the pooled regressions. Age and life satisfaction have a u-shaped relationship. Better health status is significantly correlated with higher life satisfaction. Unemployed persons are significantly less happy with their life than non-employed and employed persons in the pooled and the fixed effects regressions, whereas employment is only correlated with higher life satisfaction in the fixed effects regressions.

The consumption values of partnerships and friends in terms of yearly net household income measured in real Euros for the year 2003 are computed by using the estimated coefficients from Table II. The results are presented for every specification in Table III. The first and second specifications without fixed effects indicate yearly consumption values of partnerships of more than 60,000 Euros per year, whereas the fixed effects results even indicate values of almost 130,000 Euros per year. The average consumption value of one friend is 4,793 Euros per year in the pooled and 5,877 Euros per year in the fixed effects regression. The categories for the number of friends indicate, in the extreme, yearly consumption values of larger friendship networks with eleven or more friends of more than 80,000 Euros in the pooled and of more than 95,000 Euros in the fixed effects regressions.

Table II: Regression results for variables of interest and control variables

	Pooled cross sections (n=29304)			Balanced panel (n=2*9972=19944)		
	(1)	(2)	(3)	(1)	(2)	(3)
Serious/permanent partnership (dummy)	0.4416***	0.4454***	0.4295***	0.4184***	0.4218***	0.4120***
	(0.0243)	(0.0243)	(0.0243)	(0.0533)	(0.0533)	(0.0533)
Number of close friends	0.0340***			0.0191***		
	(0.0023)			(0.0042)		
One or two friends (dummy)		0.0985**	0.0949**		0.0079	0.0082
		(0.0394)	(0.0393)		(0.0655)	(0.0654)
Three or four friends (dummy)		0.2755***	0.2693***		0.1108*	0.1107*
		(0.0390)	(0.0389)		(0.0672)	(0.0671)
Five or six friends (dummy)		0.3852***	0.3780***		0.1877***	0.1892***
		(0.0408)	(0.0407)		(0.0708)	(0.0708)
Seven or eight friends (dummy)		0.4163***	0.4053***		0.1528*	0.1527*
		(0.0508)	(0.0507)		(0.0847)	(0.0846)
Nine or ten friends (dummy)		0.5001***	0.4950***		0.2462***	0.2375***
		(0.0481)	(0.0480)		(0.0821)	(0.0820)
Eleven or more friends (dummy)		0.5679***	0.5562***		0.3108***	0.3086***
		(0.0563)	(0.0562)		(0.0958)	(0.0957)
Monthly net household income (real Euros 2003) / 1000	0.0851***	0.0841***	0.1395***	0.0391***	0.0391***	0.0993***
	(0.0049)	(0.0049)	(0.0069)	(0.0110)	(0.0110)	(0.0165)
Monthly net household income squared / 1000²			-0.0018***			-0.0015***
			(0.0002)			(0.0003)
Control variables:						
Number of persons in household	-0.0101	-0.0078	-0.0274***	-0.0152	-0.0150	-0.0383*
	(0.0080)	(0.0080)	(0.0082)	(0.0191)	(0.0191)	(0.0197)
Female (dummy)	0.0983***	0.0934***	0.0928***			
	(0.0175)	(0.0175)	(0.0175)			
German citizenship (dummy)	0.1103**	0.1012**	0.0880*	-0.0100	-0.0256	-0.0256
	(0.0478)	(0.0477)	(0.0477)	(0.2428)	(0.2428)	(0.2425)
Age in years	-0.0562***	-0.0548***	-0.0548***	-0.0141	-0.0179	-0.0166
	(0.0047)	(0.0047)	(0.0047)	(0.1207)	(0.1207)	(0.1206)
Age squared / 100	0.0724***	0.0712***	0.0702***	0.0300**	0.0288*	0.0307**
	(0.0053)	(0.0053)	(0.0053)	(0.0148)	(0.0148)	(0.0148)
Subjective health status (1: very good, 5: bad)	-0.7948***	-0.7905***	-0.7860***	-0.5342***	-0.5341***	-0.5331***

	(1)	(2)	(3)	(4)	(5)	(6)
	(0.0102)	(0.0102)	(0.0102)	(0.0192)	(0.0192)	(0.0191)
Unemployment (dummy)	-0.8980***	-0.8914***	-0.8720***	-0.5613***	-0.5540***	-0.5480***
	(0.0375)	(0.0375)	(0.0374)	(0.0600)	(0.0600)	(0.0600)
Employment (dummy)	0.0012	-0.0004	-0.0209	0.0924**	0.0920**	0.0733*
	(0.0243)	(0.0242)	(0.0243)	(0.0429)	(0.0429)	(0.0430)
Middle secondary schooling degree ("Realschule") (dummy)	0.0399*	0.0324	0.0120	1.0983*	1.1051*	1.0851*
	(0.0226)	(0.0226)	(0.0226)	(0.6436)	(0.6436)	(0.6428)
High secondary schooling degree ("Abitur") (dummy)	0.0413	0.0246	-0.0108	1.0187	1.0303	1.0151
	(0.0287)	(0.0287)	(0.0288)	(0.6542)	(0.6542)	(0.6535)
Apprenticeship degree (dummy)	0.0322	0.0293	0.0292	-0.1524	-0.1608	-0.1539
	(0.0222)	(0.0221)	(0.0221)	(0.1093)	(0.1093)	(0.1092)
University degree (dummy)	0.0937***	0.0885***	0.0663**	-0.1153	-0.1152	-0.1138
	(0.0284)	(0.0284)	(0.0284)	(0.1129)	(0.1129)	(0.1128)
Year 2008 (dummy)	0.0823***	0.0821***	0.0891***	-0.0457	-0.0202	-0.0336
	(0.0173)	(0.0173)	(0.0172)	(0.5992)	(0.5994)	(0.5987)
Federal states (16)	Yes	Yes	Yes	Yes	Yes	Yes
Individual fixed effects (9972)	No	No	No	Yes	Yes	Yes
F-value for joint significance of fixed effects				2.0806***	2.0723***	2.0641***
R²	0.2735	0.2755	0.2788	0.7651	0.7653	0.7658
Adjusted R²	0.2728	0.2746	0.2779	0.5287	0.5289	0.5300

Notes: OLS regressions for general life satisfaction. Reference group are observations without a partnership and without friends; male, non-German citizenship, non-employed, low secondary schooling degree ("Hauptschule"), no apprenticeship or university degree, year 2003. Standard errors in parentheses. Statistical significant at * p<0.10, ** p<0.05, *** p<0.01.
Data: SOEP 2003+2008.

Table III: Estimated yearly consumption values of partnerships and friends

	Linear household income		Non-linear household income (specification (3))					
	(1)	(2)	(3-mean)	(3-5%)	(3-25%)	(3-50%)	(3-75%)	(3-95%)
Yearly net household income [12Y] (real Euros 2003, mean and quantiles for pooled cross-sections)	34128	34128	34128	11076	20400	29905	42000	71994
Yearly consumption values based on estimates from pooled cross sections in Table II (real Euros 2003)								
Serious/permanent partnership	62249	63541	39955	37848	38654	39509	40652	43796
Number of close friends	4793							
One or two friends		14054	8833	8367	8545	8734	8987	9682
Three or four friends		39308	25052	23730	24236	24772	25489	27460
Five or six friends		54945	35162	33308	34017	34769	35776	38543
Seven or eight friends		59386	37703	35714	36475	37281	38361	41327
Nine or ten friends		71343	46050	43621	44550	45535	46853	50476
Eleven or more friends		81016	51740	49011	50055	51161	52642	56714
Yearly consumption values based on estimates from balanced panel with fixed effects in Table II (real Euros 2003)								
Serious/permanent partnership	128510	129582	55032	51223	52525	53907	55775	61019
Number of close friends	5877							
One or two friends		2431	1094	1018	1044	1072	1109	1213
Three or four friends		34052	14786	13762	14112	14483	14985	16394
Five or six friends		57668	25265	23516	24114	24748	25606	28013
Seven or eight friends		46934	20390	18979	19461	19973	20665	22608
Nine or ten friends		75630	31719	29523	30274	31071	32147	35169
Eleven or more friends		95493	41220	38367	39342	40378	41777	45704

Notes: Consumption values in terms of household income (in real Euros for the year 2003) are computed by dividing the estimated coefficients for partnership or friends (β) by the estimated coefficient for household income (γ). The concrete formula for the yearly consumption values based on the regression results for specifications (1) and (2) is: $(\beta/\gamma)*12$. The concrete formula when taking non-linearity of household income into account in specification (3) is: $(\beta/(\gamma_1+2\gamma_2 Y))*12$. In order to compute concrete consumption values for the non-linear specification, household income (Y) takes on several values (mean, 5%-, 25%-, 50%-, 75%-, and 95%-quantiles) that are displayed in the first row.
Data: SOEP 2003+2008.

When taking non-linearity of household income into account, the consumption values of partnerships and friends significantly decrease in size. Whereas we obtain only an average consumption value for all income levels in the linear case (β / γ_1), the consumption values in the non-linear specification differ by income levels ($\beta / (\gamma_1 + 2\gamma_2 Y)$). In order to compute concrete consumption values for the non-linear specification, several values for household income (*Y*) are used that include the mean and different quantiles of income (5%, 25%, 50%, 75%, 95%). The respective values of the yearly net household income are displayed in the first row of Table III. Overall the differences between the consumption values at different income levels are not very large, while the differences to the estimated consumption values using linear household income are significant. For example, the yearly consumption value of partnerships at the mean income level reduces to about 40,000 Euros in the pooled and to 55,000 Euros in the fixed effects regressions. The consumption values of friends also decrease significantly when taking non-linearity of income into account. However, they are still sizeable with yearly consumption values of larger friendship networks with eleven or more friends of more than 50,000 Euros in the pooled and of more than 40,000 Euros in the fixed effects regressions.

4. Conclusion

Life satisfaction estimates for Germany indicate that money as well as social relationships matter. The high consumption values of permanent partnerships and close friends of several ten thousands Euros per year in terms of household income are in line with previous findings for the US on partnerships (Blanchflower and Oswald 2004), for the UK on meeting with friends and relatives and on talking to neighbors (Powdthavee 2008), and for the UK on deaths of partners and friends (Oswald and Powdthavee 2008). The relevance of social relationships in determining well-being is often ignored in standard welfare analysis, although the shadow prices can be estimated, are very large and should therefore not be ignored. For example, a cost-benefit analysis of mobility should also take into account these negative effects as already pointed out by Layard (2006, p. C32): "More mobility certainly increases income but it also affects the quality of relationships in the community and in families. Economists should not advocate more mobility without considering these effects also." This statement can of course be translated to all factors, which might negatively affect social relationships, such as increasing labor market flexibility (e.g., labor mobility, overtime- and shift-work).

My econometric analysis has moreover shown that the computed consumption values are significantly lower when non-linearity (decreasing marginal utility) of household income is accounted for, which indicates a significant upward bias in the computation of consumption values (willingness to pay or shadow prices) when using linear income specifications such as in Blanchflower and Oswald (2004), Powdthavee (2008), Oswald and Powdthavee (2008), and many other studies. Another upward bias in the computation of consumption values might stem from further endogeneity of household income, as research on the causal effects of household income on happiness has shown that the estimated coefficients are larger in IV (instrumental variable) than in OLS estimates. For example, Luttmer (2005) reports three times and Powdthavee (2010) reports twice as large coefficients for the log of household income in IV than in OLS estimates. Pischke (2011) reports mixed results and concludes: "While IV standard errors are large, and the results bounce around to some degree, to me at least, they seem to be pointing in a remarkable consistent direction. The IV results tend to be very similar to the OLS results, and

for the most part not smaller. (Pischke 2011, p. 37)." Due to the problem of finding an adequate instrument for household income in my empirical investigation, this remains an unresolved issue that might have led to an upward bias of the reported consumption values of social relationships. But even if the consumption values are reduced by half, they would be still to sizeable to be ignored.

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