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The Role of Income Aspirations in Individual Happiness

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Abstract: Does individual well-being depend on the absolute level of income and consumption or is it relative to one's aspirations? In a direct empirical test, it is found that higher income aspirations reduce people's utility, ceteris paribus. Individual data on reported satisfaction with life are used as a proxy measure for utility, and income evaluation measures are applied as proxies for people's aspiration levels. Consistent with processes of adaptation and social comparison, income aspirations increase with people's income as well as with the average income in the community they live in. (90 words)

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The Role of Income Aspirations in Individual Happiness

1 Introduction

How are income and consumption related to individual well-being? Economics takes it as self-evident that higher income and consumption provide higher utility. Moreover, it is assumed that people's satisfaction depends on what they have in absolute terms.[1]

In contrast, research on individual happiness has found patterns in reported subjective well-being that are at odds with this view. There is systematic evidence that people in industrialized countries are not becoming happier over time, despite economic growth (e.g. Blanchflower and Oswald 2000, Easterlin 1974; 1995). However, people with a higher income than others in their society *do* report higher levels of happiness. Both observations can be explained by introducing income aspirations in people's utility function, which capture their concerns for relative income, as well as their adaptation to previous income level (Easterlin 2001). Even though income aspirations seem to play an important role in individual welfare, they have not been empirically analyzed in a direct way so far.

In this paper, using a new, more direct and general approach, the effect of income aspirations on people's utility is empirically tested. This is made possible with a unique data set that includes individual data on reported satisfaction with life as a proxy measure for utility, as well as income evaluation measures as proxies for people's aspiration levels. There is evidence that higher income aspirations reduce satisfaction with life, ceteris paribus.

[1] There are, of course, scientists who oppose this notion. Frank (1985a, 1999), Galbraith (1958), Hirsch (1976), Scitovsky (1976) and more recently Schor (1998), who have studied consumer culture – in particular in the United States – emphasize the important role of socially formed aspirations and expectations for consumer satisfaction.

Two processes are theoretically put forward as forming individual aspirations. First, there is individuals' adaptation to repeated stimuli, as provided by people's consumption habits. Whereas additional material goods and services initially provide extra pleasure, their effects wear off over time. Thus people get used to their consumption and income level. Second, there are social comparisons with relevant others. It is not the absolute level of income that matters most, but rather one's position relative to other individuals. Socially comparative or even competitive processes in consumption complement processes of hedonic adaptation. Together, it is suggested, they make people strive for ever higher aspirations.

Here the determinants of income aspirations are empirically studied. The econometric results show – consistent with processes of adaptation - that income aspirations increase with personal income. For the analysis of relative income concerns, individuals' aspirations are merged with data on aggregate income in the community people live in. The results indicate i) that a higher average income in the community increases people's levels of aspiration and ii) that the estimated effects are larger for people who interact with other community members.

Finally, a potential endogeneity bias in people's reported aspiration levels is addressed in a two-stage estimation approach of reported satisfaction with life. Estimates of a full and a reduced model support the basic result that higher income aspirations reduce individual well-being, ceteris paribus.

The paper proceeds as follows. Section 2 outlines the theoretical framework for the study of the effect of income aspirations on individual well-being. It introduces reported subjective well-being as a proxy measure for utility and puts forward three testable propositions that are derived from a relative utility concept. In section 3, the empirical analyses are conducted. Section 4 draws conclusions.

2 Income Aspirations and Individual Happiness

Human beings are unable and unwilling to make absolute judgements. Rather, they are constantly drawing comparisons from their environment, from the past or from their expectations of the future. Thus, we notice and react to deviations from *aspiration levels*.

There are two main processes, which form individuals' aspirations, and make for the relativity in people's utility evaluation.

First, people make social comparisons, which drive their positional concerns for income. It is not the absolute level of income that matters most, but rather one's position relative to other individuals. This idea of *relative income* is one part of the more general aspiration level theory. Positional concerns are not a new aspect of human nature, but they are probably more pronounced today because of more extended possibilities of social comparison. Many economists in the past have noted that individuals compare themselves to significant others with respect to income, consumption, status or utility. Marx (1849) expressed his view about the social aspect of utility most explicitly: "Our wants and pleasures have their origin in society; we therefore measure them in relation to society; we do not measure them in relation to the objects which serve for their gratification. Since they are of a social nature, they are of a relative nature." Veblen (1899) coined the notion of 'conspicuous consumption', serving to impress other persons. The 'relative income hypothesis' has been formulated and econometrically tested by Duesenberry (1949), who posits an asymmetric structure of externalities. People look upward when making comparisons. Aspirations thus tend to be above the level already reached. Wealthier people impose a negative external effect on poorer people, but not *vice versa.* As a result, savings rates depend on the percentile position in the income distribution, and not solely on the income level, as in a traditional savings function.

Second, people adapt to their previous income or consumption level. Additional material goods and services initially provide extra pleasure, but it is usually only transitory. Higher utility from

material goods wears off. Satisfaction depends on change and disappears with continued consumption. This process, or mechanism, that reduces the hedonic effects of a constant or repeated stimulus, is called adaptation.

Processes of hedonic adaptation supplement the socially comparative, or even competitive, processes in consumption. Together, they make people strive for ever higher aspirations.[2] It is but a short step from aspirations to individual welfare. According to aspiration level theory, individual well-being is determined by the gap between aspiration and achievement (Michalos 1991 and Inglehart 1990, ch. 7).

Most economists would not deny that utility is inherently relative in nature.[3] Nevertheless, most economic models of human behavior assume invariant utility functions. Presumably for reasons of testability of the basic model, changing tastes have been widely neglected. Among the few exceptions, the theories of preference change have concentrated on habit formation (e.g. Marshall 1890; Modigliani 1949; Pollack 1970; and more recently Carroll, Overland and Weil 2000). Concepts of interdependent preferences due to comparisons with relevant others (see e.g. Frank 1985b; Pollak 1976; and Clark and Oswald 1998 for a survey) have remained rare.[4]

Economic models of interdependent preferences and habit formation usually focus on demand behavior. However, it has been argued that there are much stronger implications for individual welfare than for the prediction of human behavior (Holländer 2001).[5]

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[2] The concept of aspiration levels is well grounded in psychology and sociology (e.g. Irwin 1944, Lewin et al. 1944 and Stouffer et al. 1949), as is adaptation level theory in psychology (in particular Helson 1964, Brickman and Campbell 1971, Parducci 1995; and, for a modern discussion, Frederick and Loewenstein 1999).

[3] Even founders of traditional economics, like Paul Samuelson, emphasized that utility functions are not constant: "Because man is a social animal, what he regards as 'necessary comforts of life' depends on what he sees others consuming" (1973, p. 218 cit. in Holländer 2001).

[4] There is another class of interdependent utility models that focuses on fairness concerns rather than positional concerns (e.g. Becker 1974, Fehr and Gächter 2000). Empirical studies that focus on individuals' distributive concerns, and which use data on reported subjective well-being, are e.g. Alesina et al. (2001), Hagerty (2000), Schwarze and Härpfer (2002) and Tomes (1986).

[5] Thus, a concept of relative utility may explain the strong public concerns for unemployment, inflation and income equality relative to economic growth. Its consequences for economic policy are addressed e.g. by Frank (1997), Layard (1980) and Boskin and Sheshinski (1978).

In this paper, we propose a new approach, which focuses on individual welfare, to test the relative utility concept. How income aspirations affect individual utility is analyzed directly.

Thereby, reported subjective well-being is used as a proxy measure for utility.[6] Although this is not (yet) standard practice in economics, indicators of happiness or subjective well-being are being increasingly studied and successfully applied (e.g. Clark and Oswald 1994, Di Tella et al. 2001, Easterlin 2001, Frey and Stutzer 2000, Kahneman et al. 1997 and, for surveys, see Frey and Stutzer 2002a,b and Oswald 1997). The existing state of research suggests that measures of reported satisfaction are a satisfactory empirical approximation to individual utility (Frey and Stutzer 2002b).

In the current study, the data on reported satisfaction with life are combined with a theoretically and empirically well-grounded concept for people's aspirations: the individual welfare functions (e.g. van Praag 1971; for a recent survey, see van Praag and Frijters 1999). In research on individual welfare functions, a cardinal relationship between income and expected welfare is established by asking individuals to add income ranges to a number of qualitatively characterized income levels.[7] Answering this 'income evaluation question', they should take into account their own situation with respect to family and job. People's answers provide information about the income that is sufficient to meet their aspiration level, i.e. the income that is required to reach mean expected welfare. Individual welfare functions have, for instance, been applied to study changes in people's aspirations with higher income (preference drift), to calculate income equivalence scales on a subjective basis, and to estimate the value of health. However, people's

[6] Subjective well-being is the scientific term in psychology for an individual's evaluation of his or her experienced positive and negative affect, happiness or satisfaction with life. With the help of a single question or several questions on global self-reports, it is possible to get indications of individuals' evaluation of their life satisfaction or happiness (Diener et al. 1999, Kahneman et al. 1999). Behind the score indicated by a person lies a cognitive assessment to what extent their overall quality of life is judged in a favorable way (Veenhoven 1993).

[7] For example, "Please try to indicate what you consider to be an appropriate amount for each of the following cases. Under my/our conditions, I would call a net household income per [month] of: about _____ very bad [...] about _____ very good. Please enter an answer on each line [...]" (van Praag 1993).

reported aspirations have, as far as I am aware, not been confronted yet with data on their subjective well-being.

Related research has been conducted by Easterlin (1974, 1995, 2001a,b), who uses the concept of aspirations as a frame of reference to resolve – as he calls it – the happiness paradox. The happiness paradox describes two striking observations in the relation between income and happiness: While people with higher income report, on average, higher satisfaction with life, raising everybody's income does, on average, not increase people's subjective well-being. It is argued that, in the latter case, individuals' aspirations grow in lockstep with income. This interpretation of the data is supported by laboratory findings showing the importance of relative judgements for happiness (Smith, Diener, and Wedell 1989 and Tversky and Griffin 1991). In this paper, the presumed underlying mechanism is studied explicitly.

Based on the insights discussed from previous research, I want to study three propositions:

(i) Individuals' judgements of well-being are affected by their aspiration level Y^*, over and above the effect of income Y and other individual characteristics X. That means that income aspirations Y^* are a characteristic of individual i's 'utility function'.[8] According to aspiration level theory, higher income aspirations lead to a lower subjective well-being, ceteris paribus.

$$U_{i,t} = f(Y_{i,t}, Y^*_{i,t}, X_{i,t}) \quad and \quad \delta U_i / \delta Y^*_i < 0 \tag{1}$$

(ii) Due to processes of hedonic adaptation, people's aspirations Y^* increase with their income and are thus positively dependent on their past income Y_{t-1} (controlling for other individual characteristics W).

$$Y^*_{i,t} = g(Y_{i,t-1}, W_{i,t}) \quad and \quad \delta Y^*_{i,t} / \delta Y_{i,t-1} > 0 \tag{2}$$

[8] For reasons of convenience, an extended utility function is used rather than a state-dependent utility function $U_i=U_{i,Y^*}(Y_i,X_i)$ with the aspiration level Y^* defining the state.

(iii) People's aspirations are partly formed by social comparisons with relevant others. The key question is *who* the other people are that build the relevant reference group. For Veblen (1899), rich families like the Vanderbilts are setting the reference standards. For Duesenberry (1949), keeping up with the neighboring Joneses drives the consumption aspirations. However, reference groups are only partly exogenously given, but to some extent actively chosen (Falk and Knell 2000). Even TV families in people's favorite soap operas may become the relevant others (Schor 1998).[9] In the following, the effect of other community members' income level on people's aspirations is studied. Other community members form a reference group that can hardly be avoided in everyday life.[10] It is to be expected that a higher average income level in a community $\overline{Y}_{-i}$ is pushing up an individual's aspiration level and that this effect is larger for people who actively interact with other members of the community.

$$Y_{i,t}^{*} = g(\overline{Y}_{-i,t}, Y_{i,t-1}, W_{i,t}) \quad and \quad \delta Y_i^{*} \Big/ \delta \overline{Y}_{-i} > 0 \tag{3}$$

3 Empirical Analysis

3.1 Data

The three propositions discussed above are empirically studied using two surveys. The first survey and main data source is based on more than 6,000 interviews with residents of

[9] In a study of 5,000 British workers, Clark and Oswald (1996) formed the reference group comprising persons with the same labor market characteristics. They conclude that the higher the income of the reference group, the less satisfied people are with their job. Social comparisons within the family are studied by Neumark and Postlewaite (1998) in order to test the role of relative income for utility. They find that the decision of a woman to go for paid work depends on whether her sisters and sisters-in-law are employed and how much they earn in their job. In a recent study for Germany, Ferrer-i-Carbonell (2002) combines individuals with a similar education level and age to an exogenous reference group. She finds a negative effect of this group's comparison income on reported satisfaction with life. The same approach is applied in McBride (2001) with data from the General Social Survey for the United States.

[10] People may, of course, self-select into communities where they feel relatively good. Thus, an empirical analysis can only capture a lower bound of the effect of average income on individual aspirations.

Switzerland, collected by Leu, Burri and Priester (1997).[11] The proxy measure for individual utility is based on the answers to the following question: 'How satisfied are you with your life as a whole these days?' Simultaneously, the respondents were shown a table with a 10-point scale, of which only the two extreme values ('completely dissatisfied' = 1 and 'completely satisfied' = 10) were verbalized.

Household income is reported on a scale of 13 income categories, with a response rate of 89 percent.[12] On average, household income is SFr. 5,653 (approx. $ 4,000) per month. Detailed information about household size and household composition allows for the endogenous control of the equivalence of income across households.

Respondents' aspiration levels are captured using two different measures. First, the income level that people consider to be 'sufficient' is surveyed with a standard income evaluation question (e.g. van Praag 1993). People are asked: "What income would you indicate as good or bad in your circumstances? Please try to state what income per month (before taxes) for your entire household you consider to be […] sufficient."[13] Second, people are asked the minimum income question: "What household income per month would you consider an absolute minimum in order to make ends meet and without running into debt even if you reduce your needs to a minimum? We do not only mean housekeeping allowance but all essentials, including insurance, rent, taxes and so on." For the first proxy of people's aspiration levels, on average, a household income of SFr. 4,422 (approx. $ 3,100) is reported. The mean value for the second proxy is SFr. 3,966 (approx. $ 2,800). The mean values indicate that, on average, actual household income is higher than the household income people consider to be an 'absolute minimum', and also the one they

[11] The survey data were collected between 1992 and 1994 in order to investigate the problem of poverty in Switzerland. The information contained in the data set is based on personal interviews. Due to missing observations for either people's household income, their aspiration level, life satisfaction or individual characteristics, the sample finally consists of 4,462 observations (or 4,554 when reported life satisfaction is not needed).

[12] Household income is approximated by taking the mean of the selected class. For the open ended top class (SFr. 18,000 and more) a household income of SFr. 20,000 is assumed.

[13] The proxy measure is focused on one category of the income evaluation question. In addition, people were asked what income they consider to be 'very bad', 'bad', 'insufficient', 'good' and 'very good'.

consider to be 'sufficient'. This might indicate that the proxy measures do not capture people's aspirations. However, in order to study the three propositions, the indicator only has to be sufficiently correlated with the 'true' aspiration level. In the remainder of the paper, I refer to the proxy measure as aspiration level in order to keep the terminology simple. The full descriptive statistics for the aspiration variables, as well as for household income and satisfaction with life, are reported in the appendix in table A.1.[14]

The first data set contains further information about individual characteristics, like age, sex, education level, citizenship status, state of health, employment status and cultural origin. Definitions of selected variables are provided in the appendix in table A.2. The sample of observations for the empirical analysis is restricted to people who live in a private rather than in a collective household, who are not in education and who have a specified employment status.

The second data set consists of the first two waves of the Swiss Household-Panel that have been conducted in 1999 and 2000. This survey is used as a supplementary data source to study the relation between past income and minimum required income. The wording of the minimum income question is similar to the one reported above.

3.2 Aspiration levels and subjective well-being

The empirical analysis starts with a standard microeconometric happiness function. In order to make the interpretation of the results easier, least squares estimations are presented.[15] Individuals' reported satisfaction is regressed on a number of socio-demographic characteristics, as well as on the size and the composition of the household. The results for household size and household

[14] An alternative measure of people's material aspirations would be the number of consumer goods like a car, a holiday home or travel abroad that a respondent cites as part of the good life (Easterlin 2001b). However, as noted by the author, two respondents may have quite different conceptions of the price of these goods. Thus a direct approach to capture people's aspiration levels in monetary terms seems reasonable. Finally, McBride (2001) proposes reported parents' standard of living as a further proxy variable for people's 'internal' income norm.

[15] Theoretically, ordered probit or logit estimations would be more appropriate to exploit the ranking information contained in the originally scaled dependent variable 'satisfaction with life'. The respective results show that the estimation coefficients in the least squares estimations and the average marginal effects in ordered probit estimations are very similar. The respective estimates can be obtained from the author.

composition incorporate the fact that household income has to be shared among household members. However, household size also captures the fact that people live with others in probably close and supportive relationships. The results in panel A of table 1 indicate that the two effects of household size on satisfaction with life even each other out but that household composition has substantial effects. Couples are more satisfied than singles (although not statistically significant) and couples with young children are much more satisfied than singles with young children (F > 95%). The relation between age and life satisfaction seems to be u-shaped. People with average education report higher satisfaction scores than those with a low, as well as those with a high, education level. Men and women are equally satisfied with life ceteris paribus. Lower satisfaction scores are reported by foreigners, people in poor health and unemployed people (compared to Swiss, people in good health and employed people).

Household income is positively correlated with reported satisfaction with life, ceteris paribus. The coefficient implies that doubling household income increases life satisfaction by 0.185 points.[16]

In panel B and C, the happiness function is extended to include measures for individuals' aspiration levels. It is thus tested whether, according to the first proposition, individuals' judgement of well-being is relative to their income aspirations. The results show that a negative effect on subjective well-being is estimated for both measures of individuals' income aspirations. This means that people experience lower well-being when they have higher income aspirations, given their income level. A doubling of the aspiration level - measured by the income that is evaluated as 'sufficient' - reduces reported life satisfaction on average by 0.266 points. In the case of the minimum required income, the effect is -0.220. These results support the first proposition stated above, that people's subjective well-being is negatively affected by their income aspiration level, controlling for the effect of income and other individual characteristics.

[16] The coefficient in table 1 refers roughly to a tripling of household income, because the logarithmic specification means that an increase of the transformed income variable by one is equivalent to an increase of household income by a factor e, i.e. approximately 2.718.

For the demographic control variables, coefficients of similar size to panel A are estimated. In contrast, the effect of household income on life satisfaction is substantially larger (0.426 and 0.401 respectively) than in panel A. This indicates that, for a given aspiration level, higher income has a larger effect on well-being. The change in the size of the coefficient for household income provides indirect evidence that people adjust their aspiration levels with their income level (see next section).

[Table 1 about here]

The findings in panel B can be interpreted further still.[17] The positive and negative coefficients for household income and aspiration level are of similar absolute size, i.e. an equal relative increase of income and aspirations counterbalances the respective effects on well-being.[18] This indicates that it is mainly the discrepancy between income and aspirations that matters for well-being. In the following, the relative importance for well-being of an individual's income position vis-à-vis the gap between aspirations and achievement is studied in a refined empirical approach.

Let LS_i be the life satisfaction of individual i and Y_i be his or her income and Y_i^* his or her aspiration level. A simple regression that relates *LS* to income and income aspiration is:

$$LS_i = \alpha + \beta \ln Y_i + \gamma \ln Y_i^* + \delta X_i + \varepsilon_i \qquad (4)$$

where ε_i is an error term and X_i is a set of covariates, which may have independent effects on an individual's reported subjective well-being. The respective equation is estimated in panel B (and

[17] For the remainder of the paper, reported 'sufficient' income is referred to as a proxy for individuals' aspiration level.

[18] The analysis based on material aspirations in Easterlin (2001b) goes in the same direction. He finds evidence that the shortfall between people's desired number of consumer goods and their achieved number of goods is correlated with a subjectively lower chance of achieving the good life (his indicator of people's well-being).

C) in table 1. Equation (4) can be transformed into equation (5) so that the focus is directly on the gap between income aspirations and income:

$$LS_i = \alpha + (\beta + \gamma)\ln Y_i + \gamma(\ln Y_i^* - \ln Y_i) + \delta X_i + \varepsilon_i$$

or (5)

$$LS_i = \alpha + (\beta + \gamma)\ln Y_i + \gamma \ln \frac{Y_i^*}{Y_i} + \delta X_i + \varepsilon_i$$

Specification (5) separates the effect that is due to the discrepancy between log income and log aspiration level (or the log ratio between them respectively) and the pure effect of the log income level. Panel A in table 2 presents the corresponding estimates. While the gap variable has a sizeable negative effect on reported satisfaction with life, a higher income level as such only slightly increases individual well-being. The effect itself is statistically insignificant. Thus, the hypothesis that income affects individual well-being only through its effect on the gap between aspirations and achievement cannot be rejected. If (β+γ) in equation (5) is assumed to be zero, the model can be reduced to the gap variable, and the effect of income on well-being is purely relative. Panel B shows the result. For a doubling of the gap (or a doubling of the log ratio), respondents' subjective well-being is decreased by 0.290 units. To sum up, for the full as well as for the reduced model, there are strong counterbalancing effects of income aspirations on the benefits people gain from higher income. This is consistent with the first, basic proposition.

[Table 2 about here]

3.3 Adaptation and income aspirations

Research on hedonic adaptation studies processes that reduce the effects of repeated sensory and cognitive stimuli (e.g. Frederick and Loewenstein 1999). With regard to income, there is the notion that we get 'used to' a higher income level. After a period of enjoyment, the hedonic effects of higher consumption adapt to a base level and cognitive changes in interests, values and goals set in. In this process, people increase their aspiration level.

The relation between individual income and income aspirations is empirically studied in figure 1 and table 3. Thereby, recent data from the Swiss Household-Panel are investigated additionally for a first visual test. In figure 1, the natural logarithm of past income (household income in 1999) is correlated with the natural logarithm of minimum required income (in 2000). The observations indicate a clear positive relationship. On average, a 10 percent higher household income is associated with a 4.5 percent higher minimum required income. This result supports the second proposition that aspirations increase with people's income level.

[Figure 1 about here]

An extended analysis for the main data set is provided in table 3. Due to the cross-sectional design of the data set, people's previous income is approximated with people's reported household income. Results for the estimate show that a higher household income has a sizeable effect on the aspiration level. On average, a 10 percent higher income increases income aspirations by 4.2 percent. This effect is of similar magnitude to the raw correlation in figure 1 and consistent with the second proposition that aspirations increase with people's income level. Moreover, the results indicate that a higher income is not fully translated into higher income aspirations (as the coefficient is significantly smaller than one). This is also consistent with the findings of the Leyden group (see e.g. van Herwaarden et al. 1977, van Praag and van der Sar 1988), who finds that the preference shift through higher individual income 'destroys' about 60 percent of the expected welfare effect of an increase in income. [19]

It is important to interpret the correlations in figure 1 and in table 3, panel A together, because the result in the cross-section could be purely spurious. Instead of a causal relationship between

[19] In an ambitious analysis based on a panel of two waves, van de Stadt, Kapteyn, and van de Geer (1985) test whether utility is completely relative. While they cannot reject this hypothesis, their results are also consistent with partly relative utility. However, the specification that utility is solely based on absolute income is rejected.

income and an individual's aspiration level, a response bias could lead to the same observed correlation. People who tend to underestimate their income may also underestimate what they consider a sufficient income.[20] Indications for possible systematic measurement errors are the high R^2 and the high t-value for the income variable in table 3. However, a similar magnitude for the effect of income on aspirations holds when panel data are studied in figure 1. Thus, a simple rejection of the evidence is not possible. The similarity of the results for current income and income one year ago is due to the high correlation of individuals' income levels over time. The results, therefore, have to be interpreted as long term level of adaptation to higher income.[21]

The role past income plays in individuals' aspiration levels is further analyzed in panel B of table 3. People who adapted to a low income in the past are expected to have lower income aspirations in the present, ceteris paribus. Panel B shows corresponding estimation results for reported financial situation in the past. Four dummy variables capture the effects on income aspirations for people who do not live in the same financial situation as in the past. It is found that individuals' past financial situations have the expected effects on their aspiration levels. People who suffered a much worse financial situation in the previous year report, ceteris paribus, lower aspirations, while a much better financial situation in the past is reflected in a higher aspiration level today. Evidence for actual, as well as past, income is thus consistent with the second proposition.

Panel B further indicates that there seems to be an asymmetric effect for past income on income aspirations. People who enjoyed a better financial situation in the past seem to adapt less to their new income situation than those with a worse financial situation in the past. In other words, upward adjustments of aspirations occur faster and to a greater extent than downward adjustment after a worsening of the financial situation.

[20] Spurious correlation can also occur when there are unobserved individual traits that determine both income and income aspirations, like, e.g., a pronounced goal for financial success (Nickerson et al. 2003). However, Easterlin (2001b) provides some evidence that the material aspirations of young people are fairly similiar among different socio-economic groups and that differences in aspirations emerge over the life cycle. His observations do not support an omitted variable explanation of the evidence presented in figure 1 and table 3.

[21] Adaptation to income changes in the short run is open for future research in an extended panel.

In addition to the income situation, there are a number of other factors that have an effect on people's aspiration levels. There are sizeable effects for the size and composition of the household. A couple with two young children reports, ceteris paribus, a 19.4 percent higher aspiration level than a single (2.5 percent for an additional adult, 4.0 percent for two children and 12.9 percent for forming a family household with two children). Income aspirations are inversely u-shaped with age (with a minimum around age 48). This result may provide a partial explanation for the u-shaped relation between subjective well-being and age that has been found in almost all of the previous research on individual subjective well-being. Income aspirations increase with the level of education and are also higher for self-employed people (in comparison to employed people). There are no sizeable differences in the aspiration levels between women and men and foreigners and Swiss. Retired people report significantly lower income aspirations than employed people.

[Table 3 about here]

3.4 Relative income and income aspiration

The effect of social comparisons on people's aspiration levels is studied within communities. It is hypothesized that a higher income of fellow residents increases individuals' aspiration levels. Thus, in addition to individual characteristics, the income level in the community where on lives is considered a potential determinant of income aspirations. The average income level is approximated by the average income per taxpayer, as well as the proportion of rich people in the community (taxpayers with a pure income higher than SFr. 75,000; approx. $ 53,100).[22] Respondents in the sample are from 490 different communities.

[22] Data for the average income level are from the Federal Tax Administration. Total annual pure income for the assessment period 1991/92 is divided by the total number of taxpayers in the community. The same data source provides information about the proportion of taxpayers who reports a pure income higher than SFr. 75,000 in the assessment period 1991/92. A threshold of SFr. 75,000 is chosen because it is the only available from official tax statistics.

Panel A and B in table 4 present the results for the extended equations. We use a robust estimator of variance, as random disturbances are potentially correlated within the same community.[23] It is found that a higher income level in the community is reflected in higher individual aspiration levels. According to panel A, a 10 percent higher average income increases reported income aspirations by 1.9 percent. In panel B, it is shown that a 10 percentage points larger proportion of rich people in the community results in a 4.8 percent higher aspiration level.[24] Both results support the third proposition that processes of social comparison contribute to the formation of income aspirations.

[Table 4 about here]

In panel A and B, it is assumed that social interaction, in the form of social comparisons, is driving the estimated correlations. However, an alternative explanation could be based on differences in the cost of living. In communities with a higher average income, people may have to bear a higher price level, on average, for housing and individual services. These higher costs may then be reflected in higher income aspirations, independent of any process of social comparison. In order to disentangle the effects of the costs of living and of social comparisons, an indicator for social interaction is needed. Here, a proxy for people's interaction with other community members is applied. For each person in the sample, it is known whether he or she has contact with his or her neighbors.[25] It is hypothesized that the effects of the general income level in the community on an individual's aspirations are much larger for people who interact. The respective interaction effect can thus provide a lower bound for the interdependent aspiration effects.

[23] Ignoring the clustering in the estimation model is likely to produce downward biased standard errors, due to the effects of aggregate variables on individual data (Moulton 1990). To get unbiased standard errors for the aggregate variables, the communities are used as sampling units.

[24] If both aggregate income variables are included in the same equation, the coefficient for average income is 0.127, with a t-value of 1.67, and the coefficient for the proportion of rich people is 0.179 with a t-value of 0.94.

[25] The variable 'contact with neighbors' is specified as a dummy variable.

Panels C and D in table 4 show the results for the estimated interaction effects. The coefficients indicate that the average income situation in the community where on lives is much more important for the aspiration levels of people who interact with their neighbors. The general effect of a 10 percent higher average income is a 1.2 percent increase in the aspiration level. However, for people who interact, the effect is 2.3 percent, i.e. at least 1.1 percent of the effect cannot be explained by potential differences in the cost of living. For the proportion of rich people, an increase by 10 percentage points is pushing up aspirations for everybody by 2.0 percent. However, for people who have contact with their neighbors, the effect is 4.4 percent higher.

3.5 A reconsideration

Studying ideas of relative income empirically is a difficult task. With respect to social interaction, it is, for instance, often unclear with whom and in what dimensions people compare themselves. Moreover, it is often open what the affective and behavioral consequences of this interaction could be. It is therefore easy to understand that there is a repeated call for new empirical evidence in the literature. The current study sheds some new light on the relation between income aspiration and individual well-being. While the broad outline becomes clearly visible, there are a number of aspects that need reconsideration, both theoretically and empirically, in the future.

The underlying presumption of the empirical analysis is that socially formed aspiration levels affect individual well-being. However, to some extent, reverse causation might also exist. Unhappy people claim higher aspiration levels, ceteris paribus, because they expect that they could improve their affective state with a higher income level. Therefore, in a simple robustness check, the happiness function in panel B of table 1 is estimated with a reduced sample. 137 unhappy people, with a satisfaction score below 5, are excluded, because their potentially exaggerated reported aspirations might drive the results. However, there are still sizeable and

statistically significant effects of the aspiration level and household income on reported satisfaction, although the effects are somewhat smaller.[26]

A second reservation may be due to a potential omitted variable bias: For instance, neurotic people may report lower subjective well-being (e.g. DeNeve and Cooper 1998) as well as higher aspiration levels. The appropriate empirical strategy to deal with this, as well as the previous potential alternative explanation, is an instrumental variable approach. Instrumental variables ideally only have an effect on people's aspiration levels but not on their satisfaction with life. With these variables, an exogenous effect on people's aspirations can be estimated as a first step. As a second step, it can be studied whether this effect is actually affecting reported subjective well-being in a causal way. However, it is very difficult to find such instruments, because subjective well-being, as well as aspiration levels are attitudes.

Here, potential candidates for instruments in a two-stage estimation approach are the aggregate income variables, as well as the interaction terms for contact with neighbors who are studied in the previous subsection. These variables can be used to instrument the full model that is laid out in equation (4) above. The empirical evidence in section 3.2, however, suggests a reduced model, in which only the gap between aspirations and achievements affects individual well-being. In the reduced model, household income can be used as an additional instrumental variable.

The 2SLS estimates for both models are presented in table 5. In a first test of the full model (panel A), the aspiration level is instrumented with the average income level in the community as well as the proportion of rich people. In a second test of the full model (panel B), the respective interactions terms for contact with neighbors are added.[27] While the coefficients for income aspirations are still negative, they are estimated much less precisely than in table 1. The estimates for the coefficients, as well as for the standard errors, are larger. This indicates that the

[26] The coefficient for the aspiration level is –0.222, with a t-value of –2.30, and the coefficient for household income is 0.269, with a t-value of 3.73.

instruments are not very powerful or that they are directly correlated with the dependent variable for subjective well-being. The 2SLS estimates for the reduced model include the same instrumental variables as in panels A and B plus the level of household income. The results show a sizeable negative effect for the gap between income aspirations and actual income on reported satisfaction with life. The effect is now measured with a low standard error and is of a similar magnitude as in table 2, panel B. Thus, overall, the results indicate a robust negative effect of higher income aspirations on individual well-being, which is consistent with the first proposition of a relative utility concept.

[Table 5 about here]

4 Conclusions

This paper presents, in a new, more direct and general approach, empirical evidence for the effect of income aspirations on individual well-being. It is found that higher income aspirations reduce people's satisfaction with life. Thereby, the negative effect on well-being of an increase in the aspiration level is of a similar absolute magnitude to the positive effect on well-being of an equal increase in income. This suggests that subjective well-being depends only on the gap between income aspirations and actual income and not on the income level as such. Thus, the higher the ratio between aspired income and actual income, the less satisfied people are with their life, ceteris paribus. This supports the notion of a relative utility concept.

The aspiration level itself is substantially increasing with individuals' previous income. However, the effects of higher income on individual well-being at a fixed point in time are not completely counterbalanced by higher aspirations. In fact, the relative gap between income aspirations and

[27] Due to the inclusion of people in the data set who did not report whether they have contact with their neighbors or not, there are two additional interaction terms in the set of instrumental variables. These are the interaction terms between average income as well as proportion of rich people and the variable 'contact with neighbors not available'.

actual income is smaller for rich people. In the present data set, this explains the positive correlation between income and reported subjective well-being. Over and above previous income, individuals' aspirations are also systematically affected by the average income in the community where people live. The richer one's fellow residents are, the higher is an individual's aspiration level. This effect cannot be explained by a higher cost of living alone. It is shown that the aspiration levels of community members who interact within the community react much more to changes in average income than those of members who do not interact.

The reported evidence for the formation of individuals' aspiration levels and their effects on subjective well-being offers an explanation for various empirical observations. For example, if average aspirations in society increase at the same rate as income per capita, it can be understood why people in industrialized societies did not become happier over the last decades, despite substantial growth in their economic wealth. This is consistent with citizens' voting behavior. It is found that citizens support the incumbent parties when the economic conditions are good, whereby citizens take into consideration the unemployment rate and the inflation rate much more than the rate of income growth. Another observation that can be understood better is the low correlation between income and reported subjective well-being. If people evaluate their economic well-being relative to their aspirations, rather than absolute, it is no big puzzle that a fraction of people in an objectively bad economic situation are still highly satisfied and another fraction of people living under objectively good economic conditions still report being highly dissatisfied.

What are the consequences of research on relative income? The empirical basis is still quite small to be able to draw firm implications for economic theory and economic policy. Caution is called for because the implications are potentially very high. However, one might want to think about household theory, in which people's desires increase with what they get. In this framework, the marginal utility of income would not be defined anymore, as the utility function changes with the income level. Moreover, it might be interesting to study in greater depth what implications income aspirations have, for instance, on redistributive taxation or on public policy in general.

Overall, taking people's aspirations seriously helps us to better understand individuals' well-being. I submit that adaptive and comparative processes form individuals' aspirations and that these aspiration levels make for relativity in our utility judgements.

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TABLE 1 (part 1)

THE EFFECT OF INCOME ASPIRATIONS ON SATISFACTION WITH LIFE

Dependent variable: satisfaction with life

	Weighted least squares Std. errors adjusted to clustering on communities					
	A		B		C	
	Coef.	t-value	Coef.	t-value	Coef.	t-value
Household income (ln)	0.267	4.27	0.426	5.14	0.401	5.05
Aspiration level (ln)			-0.384	- 3.66		
Minimum required income (ln)					-0.318	- 3.20
Household size						
No. of adults	0.013	0.14	0.022	0.24	0.019	0.20
No. of children	-0.039	- 0.70	-0.032	- 0.57	-0.032	- 0.57
Household composition						
Single			Reference group			
Couple	0.240	1.61	0.278	1.85	0.282	1.87
Couple with young children	0.208	1.09	0.257	1.33	0.262	1.34
Couple with grown-up children	0.395	1.42	0.434	1.55	0.439	1.57
Single with young children	-0.288	- 1.04	-0.268	- 0.95	-0.262	- 0.93
Single with grown-up children	-0.291	- 0.95	-0.319	- 1.05	-0.312	- 1.03
Single with parents	0.027	0.08	0.037	0.10	0.043	0.12
Socio-demographic characteristics						
Age	-0.016	- 1.43	-0.011	- 0.96	-0.012	- 1.03
Age^2	0.24-e3	2.10	0.18-e3	1.61	0.19-e3	1.70
Low education			Reference group			
Middle education	0.178	2.13	0.195	2.32	0.190	2.28
High education	0.039	0.39	0.068	0.68	0.066	0.65
Male			Reference group			
Female	-0.046	- 0.68	-0.039	- 0.59	-0.034	- 0.51
Swiss			Reference group			
Foreigner	-0.648	- 5.38	-0.634	- 5.26	-0.632	- 5.24
Good health			Reference group			
Bad health	-0.786	- 6.82	-0.777	- 6.68	-0.773	- 6.70

TABLE 1 (part 2)

Employed			Reference group			
Self-employed	0.039	0.35	0.053	0.47	0.052	0.46
Unemployed	-1.507	- 3.50	-1.512	- 3.56	-1.509	- 3.53
Housewife	0.131	1.26	0.130	1.26	0.130	1.27
Retired	-0.024	- 0.19	-0.046	- 0.36	-0.035	- 0.27
Constant	6.145	10.63	7.811	11.59	7.445	10.81
Number of observations	4462		4462		4462	
R^2	0.109		0.113		0.112	

Notes: White estimator for variance. Additional control variables (not shown) for 'French speaking cantons' and 'Italian speaking cantons'.
Data source: Leu, Burri and Priester (1997).

TABLE 2

THE EFFECT OF THE DISCREPANCY BETWEEN ASPIRATIONS AND INCOME ON LIFE SATISFACTION

Dependent variable: satisfaction with life

	Weighted least squares Std. errors adjusted to clustering on communities			
	A		B	
	Coef.	t-value	Coef.	t-value
Household income (ln)	0.042	0.51		
Discrepancy between aspirations and income (= aspiration level (ln) – household income (ln))	-0.384	-3.66	-0.419	-5.15
Household size	——— Yes ———			
Household composition	——— Yes ———			
Socio-demographic characteristics	——— Yes ———			
Number of observations	4462		4462	
R^2	0.113		0.113	

Notes: White estimator for variance. Additional control variables (not mentioned) for 'French speaking cantons', 'Italian speaking cantons'.
Data source: Leu, Burri and Priester (1997).

TABLE 3 (part 1)

DETERMINANTS OF INCOME ASPIRATIONS: ADAPTATION

Dependent variable: income aspirations (ln)

	Weighted least squares Std. errors adjusted to clustering on communities			
	A		B	
	Coef.	t-value	Coef.	t-value
Household income (ln)	0.416	25.64	0.425	25.55
Financial situation in the past				
much worse			-0.042	-1.47
worse			-0.034	-1.96
same			Reference group	
better			0.050	4.62
much better			0.127	5.89
Household size				
No. of adults	0.025	1.39	0.025	1.40
No. of children	0.020	1.71	0.019	1.61
Household composition				
Single		Reference group		
Couple	0.094	4.10	0.091	4.00
Couple with young children	0.129	3.88	0.126	3.74
Couple with grown-up children	0.098	1.99	0.096	1.97
Single with young children	0.056	1.30	0.056	1.27
Single with grown-up children	-0.046	-0.91	-0.047	-0.94
Single with parents	0.034	0.67	0.033	0.65
Socio-demographic characteristics				
Age	0.013	7.24	0.012	6.58
Age^2	0.14e-3	-7.57	0.12e-3	-6.87
Low education		Reference group		
Middle education	0.043	2.93	0.042	2.80
High education	0.074	3.88	0.075	3.93
Male		Reference group		
Female	0.018	1.59	0.020	1.73
Swiss		Reference group		
Foreigner	0.031	1.91	0.022	1.41
Good health		Reference group		
Bad health	0.030	1.66	0.019	1.06

TABLE 3 (part 2)

Employed		Reference group		
Self-employed	0.038	2.08	0.035	1.94
Unemployed	-0.015	-0.36	-0.068	-1.51
Housewife	-0.006	-0.37	-0.010	-0.60
Retired	-0.057	-3.24	-0.056	-3.23
Constant	4.334	30.74	4.274	30.26
Number of observations	4554		4554	
R^2	0.567		0.575	

Notes: White estimator for variance. Additional control variables (not shown) for 'French speaking cantons', 'Italian speaking cantons' and 'Past financial situation not available'.
Data source: Leu, Burri and Priester (1997).

TABLE 4

DETERMINANTS OF INCOME ASPIRATIONS: RELATIVE INCOME

Dependent variable: income aspirations (ln)

	Weighted least squares Std. errors adjusted to clustering on communities			
	A	B	C	D
Household income (ln)	0.404	0.404	0.403	0.403
	(25.47)	(25.57)	(25.46)	(25.47)
Average income (ln)	0.188		0.119	
	(5.57)		(2.18)	
Proportion of rich people		0.483		0.201
		(5.83)		(1.53)
Average income			0.109	
x contact with neighbors			(1.91)	
Proportion of rich people				0.442
x contact with neighbors				(3.04)
No contact with neighbors			Reference group	
Contact with neighbors			- 0.018	- 0.020
			(-1.46)	(-1.57)
Household size	——— Yes ———			
Household composition	——— Yes ———			
Socio-demographic characteristics	——— Yes ———			
Number of observations	4554	4554	4554	4554
R^2	0.573	0.573	0.574	0.575

Notes: T-values in parentheses. White estimator for variance. The effect for 'contact with neighbors' is calculated for mean average income and mean proportion of rich people respectively. Additional control variables (not shown) for 'French speaking cantons', 'Italian speaking cantons', 'Contact with neighbors not available' and the respective interaction terms with average income in the community.

Data sources: Federal Tax Administration and Leu, Burri and Priester (1997).

TABLE 5

2SLS ESTIMATES OF THE EFFECT OF INCOME ASPIRATIONS ON SATISFACTION WITH LIFE

Dependent variable: satisfaction with life

	Std. errors adjusted to clustering on communities			
	Full model		Reduced model	
	A	B	C	D
Aspiration level (ln)	-1.661	-1.172		
	(-1.90)	(-1.61)		
Household income (ln)	0.948	0.746		
	(2.50)	(2.32)		
Discrepancy between aspirations and income (= aspiration level (ln) – household income (ln))			-0.459	-0.456
			(-4.18)	(-4.15)
Household size	———— Yes ————			
Household composition	———— Yes ————			
Socio-demographic characteristics	———— Yes ————			
Number of observations	4554	4554	4554	4554
R^2	0.071	0.102	0.113	0.118

Notes: Instruments for aspiration level in panel A: average income and proportion of rich people. In panel B: average income, proportion of rich people and their interaction terms with 'contact with neighbors'. Instruments for discrepancy in panel C: like A plus household income. In panel D: like B plus household income. White estimator for variance. Additional control variables (not mentioned) for 'French speaking cantons' and 'Italian speaking cantons'.

Data source: Federal Tax Administration and Leu, Burri and Priester (1997).

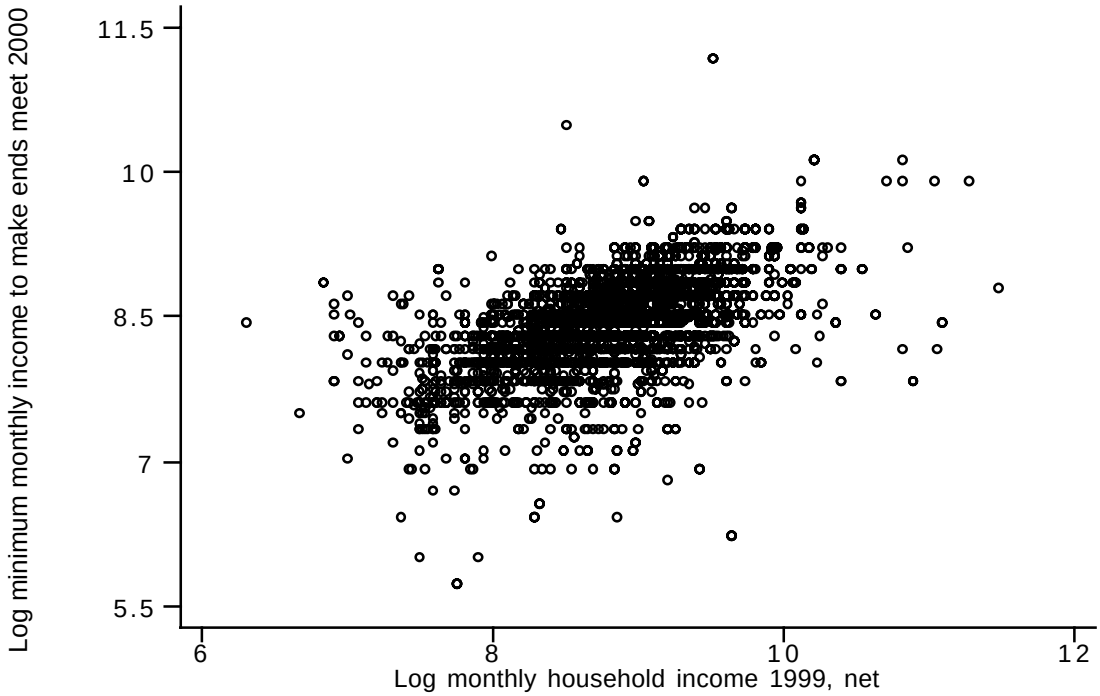

FIGURE 1
PAST INCOME AND INCOME ASPIRATIONS

Data source: Swiss Household-Panel.

TABLE A.1

DESCRIPTIVE STATISTICS

	Mean	Standard deviation
Satisfaction with life	8.24	1.69
Household income (SFr. per month)	5652.59	3334.63
Aspiration level (SFr. per month)	4422.19	1938.71
Minimum required income (SFr. per month)	3965.69	1793.92
Average income (SFr. per year)	54307.56	11901.31
Proportion of rich people	17.35%	6.77%
Proportion of people with contact to neighbors	60.53%	48.88%

Data sources: Federal Tax Administration and Leu, Burri and Priester (1997).

TABLE A.2

SELECTED DEFINITIONS OF VARIABLES

No. of adults	Number of household members over 18 years old.
No. of children	Number of household members who are 18 years old or less.
Household with young children	Household with at least one member who is 18 years old or less.
Household with grown-up children	Household with no members older than 18 years.
Low education	Mandatory schooling.
Middle education	Apprenticeship, comprehensive secondary school or comparable education.
High education	Master diploma, vocational school, university degree or comparable education.
Bad health	Important illness or disability that forced the respondent to change his or her profession or to reorganize his or her life completely.