Social Indicators and Adaptive Preferences: What is the Impact of Income Poverty on Indicators of Material Deprivation and on the Minimum Income Question?

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1   Introduction: Social Reporting, Poverty and Material Deprivation

Social indicators and quality of life research are two well-established fields of social sciences (Atkinson et al. 2002; Noll 2002a), and poverty indicators are included in most social indicators sets (Atkinson et al. 2002; Suter et al. 2008; FSO 2011; Michalos 2013). Both fields of research were developed in the 1960s and 1970s when a growing dissatisfaction emerged among scholars because "welfare" was only measured in terms of economic growth and consumption in industrialized countries, and because of a growing awareness of the negative impacts of the post-war economic boom, notably on the environment. Thus the question was raised whether more was necessarily better, which led to a focus on the *quality* of life and on *social* indicators (Zapf 1972; Zapf 2000; Noll 2002a; Veenhoven 2007); both fields of research were linked from the beginning. This emergence is often dubbed the "social indicators movement" (Zapf 2000; Atkinson et al. 2002; Veenhoven 2007).

However, a difference is highlighted in the literature, namely that while quality of life research puts emphasis on both objective and subjective indicators (Hagerty et al. 2001; Noll 2002a; Veenhoven 2007), social indicators research focuses more on objective indicators (Diener and Suh 1997; Esping-Andersen 2000; Noll 2002b). Some social reports, however, though they mainly focus on factual indicators, contain a non-negligible number of subjective variables (Suter et al. 2008). In this article I focus on social indicators research, and consider that social reports may contain both objective and subjective indicators.

In recent years, there has been an increase in social reporting carried out by national statistical offices and supranational bodies, such as the United Nations, the Organization for Economic Development and Coordination (OECD) and the European Union (Esping-Andersen 2000; Zapf 2000; Noll 2002a). The Swiss federal administration recently released its first encompassing report and, from now on, a social report will be published in each legislature (FSO 2011). It is notable that poverty indicators are systematically included in the above mentioned official social reports.

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Another noteworthy evolution is the publication of the so-called "Stiglitz report" (Stiglitz et al. 2009). Put very briefly, this report suggests that measures of economic growth are far from sufficient and that new economic indicators are needed, including measures of subjective well-being. It is interesting to note, however, that the Stiglitz report is "old wine in new skins" from a social indicators research perspective (Noll 2011).

In Europe, the early 2000s marked a turning point in the development of social indicators, especially poverty indicators. In December 2001, the Laeken European Council endorsed a first set of 18 statistical indicators of "social inclusion", many of which dealt with poverty (Atkinson et al. 2002; Eurostat 2002), poverty being defined as having an income below 60 percent of median income, i. e. Eurostat's "at-risk-of-poverty line". The "at-risk-of-poverty rate" has become one of Eurostat's main indicators of income, social inclusion and living conditions and is also available for Switzerland (FSO website, Topic 20: Economic and social situation of the population), within the framework of the bilateral agreement between the EU and Switzerland on cooperation in the field of statistics. It is important to note that the "at-risk-of-poverty" line has de facto become the most widely used poverty threshold in European comparative research in recent years (Andress and Lohmann 2008; Fraser et al. 2011).

This state of affairs, namely the dominant role of relative monetary poverty lines in European official statistics and academic research, has changed after the adhesion of new Member States to the EU (Fahey 2007; Whelan et al. 2008; Guio 2009; Nolan and Whelan 2010). Whereas the European Commission (2004) stated that an absolute notion of poverty was not relevant for the EU, the following year Eurostat (2005) published a short report on material deprivation in the EU in which the differences in living standards between old and new Member states were highlighted. In Baltic countries, 20 percent of the population lacked an indoor flushing toilet, while close or above 30 percent of the population in five out of the ten new Member States could not afford a meal with meat, chicken or fish every second day (Eurostat 2005). Indeed, criticism has been expressed that relative poverty indicators should not be used to compare countries with different levels of economic development (Kenworthy 1999; Kenworthy 2011; Notten and de Neubourg 2007; Crettaz 2011). For instance, while the at-risk-of-poverty rate is very similar in Bulgaria and in the UK, median income in the UK is much higher in purchasing power standards (Fahey 2007).

The EU's "2020 strategy", the successor to the Lisbon Strategy, aims to lift 20 million Europeans out of poverty (amongst other objectives) and both the at-risk-of-poverty rate and a measure of material deprivation will be used to measure progress in the fight against poverty (Eurostat's website, 2020 indicators). The latter indicator is based on a bundle of goods and services (hereafter "items"): for each item, respondents are asked if they have it and, in the event of a negative answer to

this question, if this is so because they cannot afford this item[1]; de facto, this means that these indicators contain a subjective dimension.

In summary, it can be said that indicators of material deprivation have made their way into European social reports, and this also has an impact on Swiss official statistics. It is likely that these indicators will increasingly be used in poverty research; in fact, they have already played an important role in the sociological literature since the late 1970s, as discussed below.

The fact that these indicators are playing an increasingly important role in social reports and in the sociology of poverty deserves a closer attention, because they are based on a subjective appreciation for respondents who do not possess certain items. The problem may be that those who have been living in poverty for a certain number of years have gotten used to their situation and have lowered their expectations, a phenomenon dubbed "adaptive preferences". In my view, sociologists have to critically analyze these indicators stemming from their discipline – from British sociology in particular – as their growing importance may affect the public perception of poverty in Switzerland and in the European Union.

The aim of this article is to measure the impact of respondents' preferences on the measurement of material deprivation as well as on purely subjective indicators; however, the main emphasis is on the former. More specifically, this article's main aim is to measure the impact of the number of years spent in income poverty on indicators of material deprivation. This research question is important, because respondents who lack an item are asked whether they have chosen not to have it or if they cannot afford it, and because many authors mention that income has a causal impact on material deprivation (Whelan and Maitre 2005; Fusco et al. 2011).

This article is organized as follows. After a brief review of the debates on the measurement of poverty in advanced economies followed by a reflection on "adaptive preferences", evidence based on Swiss data is provided as to the impact of the phenomenon of adaptive preferences on indicators of material deprivation, which are based on assumptions regarding the measurement of respondents' preferences. I then move on to purely subjective indicators, by analyzing the impact of previous poverty spells on the answers to the so-called "minimum income question". I suggest methodological solutions to these challenges at the end of this article.

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[1]   According to Eurostat, severely materially deprived persons have living conditions constrained by a lack of resources and do not have access to at least 4 out of the 9 following items: cannot afford i) to pay rent or utility bills, ii) keep home adequately warm, iii) face unexpected expenses, iv) eat meat, fish or a protein equivalent every second day, v) a week holiday away from home, vi) a car, vii) a washing machine, viii) a color TV, or ix) a telephone (Eurostat's website, 2020 indicators).

2   Poverty Measurement and Adaptive Preferences

How poverty should be measured and which poverty line should be used are issues that have kept researchers busy ever since the publication of the first poverty studies (Rowntree 1980 [1901]). I do not wish to review this plethoric literature, as this has already been done many times (see e. g. Citro and Michael 1995; Leu et al. 1997). It can be said that, basically, two main approaches exist: the first one is based on an absolute measurement of poverty, usually on the cost of a basket of goods and services kept constant in real terms across years and countries. Alternatively, poverty measurement can be based on a fixed set of goods and services used for all countries and all years under study, and households are deemed to be materially deprived if they lack a certain number of items because they cannot afford them; Eurostat measures material deprivation in this way. The second approach to poverty measurement is based on a relative measure, the poverty line being expressed as a share of equivalized median disposable income, as is the case in most European official statistics and scholarly publications. Indicators of material deprivation can be designed to be relative by using weighting factors that vary from country to country or from one year to another. This weighting procedure is based on the percentage of the population who own each item or on the share of respondents who consider that an item is necessary to lead a decent life, or both (Halleröd 1995; Leu et al. 1997; Gazareth and Suter 2010; Nolan and Whelan 2010).

It should be noted that some researchers have recommended to use purely subjective indicators to measure poverty. I deal with this topic in the last part of this article. Finally, it is noteworthy that income poverty and material deprivation are measured at the household level; poverty research focuses on *individuals* who live in a poor and/or deprived *household*. This combination of individual and household-level variables is the norm in poverty research (Andress and Lohmann 2008; Crettaz 2011; Fraser et al. 2011). Concerning indicators of material deprivation and the minimum income question, it is very important to note that one household member answers for all members. The subjective nature of these questions implies a certain degree of interpretation, which means that, for each household, the answers could have been different if another person had answered these questions. I do not think that this strongly affects results and I do not provide answers to this potential problem in what follows. However, this issue should be tackled in future research, notably the impact of the respondent's gender on the assessment of the household's material and financial situation.

Material deprivation indicators deal with the question of whether a household possesses goods or engages in activities that could be considered minimum standards. This school of thought was initiated by British sociologists (Townsend 1979; Mack and Lansley 1985). Many variations have been proposed, in terms of the number of items, the number of dimensions, and of the construction of a deprivation index

(Halleröd 1994; Halleröd 1995; Boarini and Mira d'Ercole 2006; Ferro Luzzi et al. 2008; Gazareth and Suter 2010; Nolan and Whelan 2010), as well as in terms of weighting, as indicated above. While the original approach advocated by Townsend (1979) only took into account whether respondents lacked items, today's researchers are also interested in whether respondents chose not to have these items or not: material deprivation is defined as an *enforced* lack of goods and services.

Reflections on adaptive preferences are not new to social sciences. Bourdieu (1979) tackled this issue concerning the French working class. On the basis of survey data and qualitative evidence, Bourdieu concluded that the habitus of members of the working class was characterized by the fact that they made a virtue of necessity. They said that they had chosen their lifestyle, although it was largely imposed by limited economic, cultural and social resources (Bourdieu 1979). In the early 1980s, Elster (1982) mentioned that adaptive preference formation takes the form of downgrading the inaccessible options, as people adjust their preferences to their situation, the so-called "sour grapes" effect (Teschl and Comim 2005; Halleröd 2006). This problem is also mentioned in quality of life research (Hagerty et al. 2001; Noll 2002a; Noll 2002b). Indeed, "[p]eople's psychological adjustment strategies to objective conditions appear to be remarkably flexible" (Diener and Suh 1997, 202). Sen (1984, 309) likewise states that the "underdog learns to bear the burden so well that he or she overlooks the burden itself".

More specifically, the impact of adaptive preferences on indicators of material deprivation is mentioned by researchers who base their research on this type of indicators (Halleröd 2006; Guio 2009; Nolan and Whelan 2010; Fusco et al. 2011). However, most authors tend to downplay the impact of this phenomenon, while others only provide indirect evidence (Halleröd 2006). However, it can be assumed that if households who have been at a financial disadvantage for many years lack an item, they are more likely to say that it is by choice, not because of insufficient financial resources. This is the hypothesis that I test in the following sections.

3 Data Set and Indicators of Material Deprivation

The Survey on Income and Living Conditions (SILC) is used to calculate the indicators of income poverty and material deprivation included in the EU 2020 indicators set. SILC is carried out in all 27 Member States, as well as in Iceland and Norway. In Switzerland, SILC data have been collected since 2004; the 2004 and 2005 surveys were pilot studies. However, the Swiss SILC dataset is not available to researchers as of writing this article. For the purposes of this contribution, the Swiss Household Panel (SHP) is an appropriate database[2], as it contains many

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2   This study has been realized using the data collected by the Swiss Household Panel (SHP), which is based at the Swiss Centre of Expertise in the Social Sciences FORS. The project is financed

variables that can be used to build indicators of material deprivation, even if it does not contain the same variables as SILC.

This means that I had to select a bundle of goods and services. This choice was based on an analysis performed by Ferro Luzzi et al. (2008). These authors identified four latent dimensions among the 32 living conditions variables available in the Swiss Household Panel, namely "financial poverty", "poor health", "bad neighborhood" and "social exclusion". In what follows, I focus on "financial poverty" in order to be able to assess the impact of income poverty on indicators of material deprivation. In addition, this approach is similar to Eurostat's (2005), which focuses on commodities and activities whose access is linked to the financial strain encountered by the household. Last but not least, though material deprivation is multifaceted, the inclusion of too large a number of dimensions obscures our understanding of poverty (Whelan and Maitre 2005) and an all-encompassing definition of poverty is not desirable (Whelan et al. 2008).

It needs be highlighted that the choice of the items does not play a fundamental role here, because the purpose of this article is heuristic: I want to assess the impact of adaptive preferences on indicators of material deprivation in general. From a social indicators research perspective, however, it would be interesting and important to use Eurostat's indicator and SILC data, but as already indicated this is not yet possible.

Among the variables identified as belonging to the "financial poverty" factor, I decided to focus on goods and services associated with two questions: whether the respondent possesses these items, and in the event of a negative answer to the first question, whether he or she has chosen not to buy these goods and services or if he or she cannot afford them. Eventually, the number of items used in this section amounts to seven:

- Do you take at least one week's holidays away from home once a year?

- Do you invite friends round for a meal at least once a month?

- Do you have a meal out at a restaurant at least once a month?

- Do you have a car?

- Do you have a dishwasher?

- Do you save in a "3rd pillar" (private) pension fund?

- Are you able to go to the dentist if needed?

On the basis of these questions, it is possible to calculate a simple additive index similar to Eurostat's, i.e. the number of items the respondent cannot afford. The research question asked here is the following: at each level of income and needs, is

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the number of items a household cannot afford influenced by a previous experience of poverty? If the phenomenon of adaptive preferences has an impact on material deprivation, my hypothesis is that the longer the period spent in poverty, the lower the likelihood of saying "I cannot afford it", and, hence, the lower the value of the index, *ceteris paribus*.

In order to test this assumption, I use a binary logistic regression to model the odds of not being able to afford a certain number of goods and services. The independent variables included in this model are the logarithm of after-tax income, the number of adults and children in the household and the number of years spent in poverty (defined as having an income below 60 percent of median equivalized after-tax income). Moreover, the number of items a household lacks is also included, so that the dependent variable reflects the respondent's tendency to say "I cannot afford it".

The after-tax income is obtained by deducting the taxes paid by the household (variable H$$I70) from the net yearly household income (i. e. the household income net of social security contributions but before taxes, variable I$$HTYN). Mandatory health care insurance contributions should also be deducted in order to calculate disposable income, as they should be considered on the same footing as social security contributions. However, it is very difficult to collect reliable information through telephone surveys; hence, I decided to settle for the after-tax net income. But how reliable are income and tax data in the SHP? In order to assess the validity of the income reported by the SHP sample, I compared the distribution of net income in the SHP 2007 with the figures provided by the Swiss Federal Tax Administration (hereafter FTA). Tax payers are divided into ten categories of equal size (income deciles), and the comparison is based on each decile's share of total income. The results are presented in Figure 1.

The income distribution among SHP respondents is very similar to the one derived from official tax statistics. However, some slight differences are observable: respondents in the bottom decile get more than 1 percent of total income, while according to the FTA this share amounts to 0.42 per cent. The SHP also slightly underestimates the share of total income that respondents in deciles 2 to 7 get, while for those in the upper deciles (8 to 10) the SHP tends to underestimate this share. However, the bias is not strong and should not affect my conclusions.

As far as the tax variable is concerned, Kuhn and Schmid (2009) used a simulation package based on the information provided by the FTA regarding tax rates in 812 municipalities in Switzerland in 2007, and concluded that self-reported taxes (i. e. reported by survey respondents) and simulated values were strikingly similar for married couples. The difference was more marked for one-person households, and self-reported taxes tended to be underestimated. However, the median difference is zero; hence, the tax variable used in this article is reliable.

Figure 1   Share of Total Net Income of Each Income Decile, in Percent,
                  in 2007
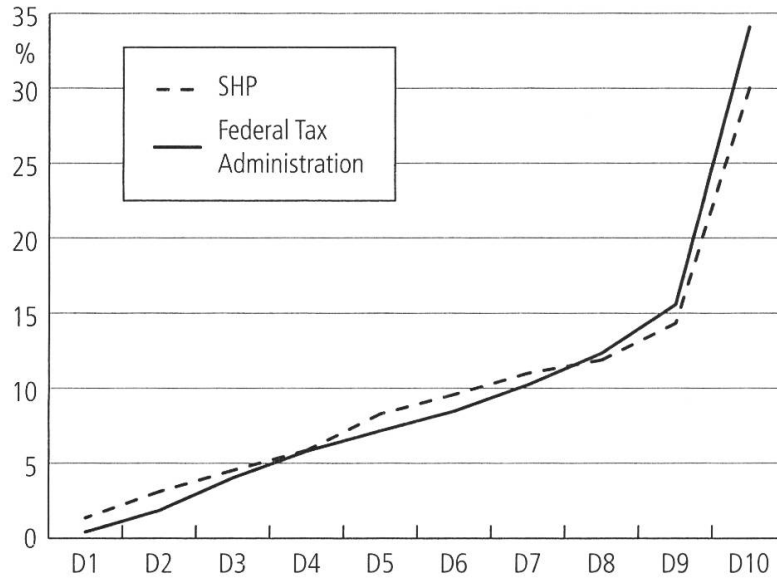
Sources: Own calculations based on SHP 2007 data & Federal Tax Administration (2011).
Own representation.

The analysis presented here is based on a representative sample of the population in 2007 (because a comparison of self-reported and simulated taxes was available, among other reasons) and the results presented below are based on weighted data (transversal weight). In order to assess if a household has experienced poverty during the five years preceding the last interview (2003–2007), I calculated for each household and each year the after-tax income adjusted with the modified OECD equivalence scale to account for differences in family size and composition. The low-income threshold is set at 60 percent of median income – i.e. the EU's official poverty line. Then, I calculated the number of years each household spent in poverty, ranging from 0 to 5. All in all, I obtained relevant information from 991 households who were in the SHP sample between 2003 and 2007. 790 households were never poor, 100 were poor for a year, 28 for 2 years, 28 for 3 years, 18 for four years and 27 were poor for five years. However, as I assess the impact of previous poverty spells by means of regression models, it is important to take a look at attrition rates across income groups, in order to see if low-income households are more likely to drop out of the sample. Table 1 compares households who participated in each wave and those who participated in some but not all waves.

Households in the bottom income quintile are underrepresented among those who participated in each wave of the survey; hence, in what follows, the robustness of findings against attrition is assessed by using a weighting procedure that corrects for this bias.

Table 1   Comparison Between Respondents who Participated in Each Wave
                 of the Survey and Those who Participated in Some but Not in All:
                 Distribution Across Income Quintiles

	SHP before 2005		SHP from 2005	
	Always in the sample	Not in all waves, but at least once (& at least in one of the two latest)	Always in the sample	Not in all waves, but at least once (& at least in one of the two latest)
Q1	15.2	20.9	13.9	21.0
Q2	18.7	20.9	20.7	21.0
Q3	21.6	18.8	20.6	20.9
Q4	21.8	19.7	21.8	18.0
Q5	22.7	19.7	23.1	19.1

Source: Own tabulation based on Kuhn (2009).

4   Previous Income Poverty Spells and Material Deprivation

Six models are presented here. A binary logistic regression predicts the odds of not being able to afford one or more items (Model 1) and two or more items (Model 2), while four further models are used to assess the robustness of findings, controlling for the household's composition and income. The reference category in the first model corresponds to households who can afford all items, while in the second model it corresponds to households who can afford at least six of the seven items listed above.

Unsurprisingly, an increase in after-tax income reduces the odds of not being able to afford one or more of the seven items (Model 1): a 10-percent increase reduces these odds by 4 percent (calculation not shown). Moreover, the less goods and services a person has access to, the more likely he or she is to say "I do not have this item because I cannot afford it" (the odds more than double for a one-unit increase in the number of lacking items). More importantly for my analysis, an additional year in poverty (over the five-year period preceding the interview) decreases the odds of not being able to afford an item or more by 4.4 percent $(0.956-1 = -0.044)$, all other things being equal. Put differently, for a household of a given size, composition and income that possesses a given number of items, each additional year in poverty reduces the odds of attributing the lack of an item to insufficient financial resources.

Model 2 confirms this first finding: the number of years spent in poverty has a significant impact on the odds of not being able to afford two or more items. More

Table 2   Odds of Not Being Able to Afford 1 or More and 2 or More Items in
                 2007, Binary Logistic Regression

	(1) Cannot afford 1+ item Exp(β)	(2) Cannot afford 2+ items Exp(β)	(3) Cannot afford 1+ item Exp(β)	(4) Cannot afford 2+ items Exp(β)	(5) Cannot afford 1+ item Exp(β)	(6) Cannot afford 2+ items Exp(β)
Ln[1] (after-tax income)	0.574**	0.932**	0.573**	0.928**	0.532**	0.880**
Number of adults in household (18+ years)	1.624**	1.510**	1.594**	1.492**	1.673**	1.553**
Number of children in household (0 to 17 years)	1.675**	1.849**	1.732**	1.959**	1.696**	1.863**
Number of years in poverty between 2003 and 2007	0.956**	0.889**	0.952**	0.874**	0.945**	0.886**
Number of items not possessed	2.338**	3.476**	2.288**	3.462**	2.334	3.456**
Families with 3+ children included?	Yes	Yes	No	No	Yes	Yes
Weighting corrects for attrition?	No	No	No	No	Yes	Yes
Nagelkerke's pseudo-R²	0.311	0.389	0.303	0.396	0.314	0.39
Number of cases	953	953	884	884	953	953

[1]   Ln = natural logarithm.
** Significant at the 1% level.
Source: Swiss Household Panel, own calculations.

precisely, these odds decrease by 11.1 percent ($0.889 - 1 = -0.111$). The direction and significance of the effect of the other factors remain unchanged.

The main drawback of Models 1 and 2 is that the variable "number of years spent in poverty" is based on equivalized income; however, proponents of the use of subjective equivalence scales criticize the scales used in mainstream research because they may overestimate children's needs and, hence, lead to an overestimation of poverty among families with more than two children (see e. g. Falter 2004). What these researchers measured may be the result of adaptive preferences, parents of three or more children getting used to having a low income-to-needs ratio. Nonetheless, I decided to take this criticism into account and excluded families with three children and more from the sample and re-ran both regressions (see Models 3 and 4 in Table 2). The effect of an additional year in poverty is virtually unchanged:

the odds of not being able to afford one or more items are reduced by 4.8 percent (compared to 4.4 per cent), while for two or more items the odds decrease by 12.6 percent (compared to 11.1). The direction and significance of the effect of the other explanatory variables remain unchanged.

As indicated above, attrition may bias estimates, because low-income households are underrepresented among those who participated in each wave of the SHP (Kuhn 2009). I regressed the odds of participating in the survey each year (2003–2007) on the logarithm of household income, and on family size and composition, in order to get the estimated probability of participating in each wave. Then, inverse probability weights were used to correct for attrition bias. I re-ran the regressions and results were hardly affected (Model 5 and 6); hence, attrition does not have a major impact on the estimates.

The results presented above clearly show that the number of years spent on low income significantly reduce the odds of saying "I cannot afford it" if one lacks an item and, hence, constitute convincing evidence of the existence of adaptive preferences. However, as indicators of material deprivation combine subjective and objective elements, it is also important to measure the impact of income poverty on the number of goods and services respondents have access to. To this end, I calculated a simple additive index that counts the number of items not possessed, whatever the reason for it, and regressed the log odds of lacking one or more and two or more items, respectively, on the household's income, size and composition, as well as on the number of years on low income over the period 2003–2007.

As could be expected, the higher the household income, the lower the likelihood of not possessing one or more items (Model 1 in Table 3): a 10-percent increase in net income reduces the odds by 7.6 percent (calculation not shown). More importantly here, an additional year in poverty increases the odds of lacking one or more items by 78.7 percent (Model 1) and the odds of lacking two or more items by 25.9 percent (Model 2), *ceteris paribus*. These effects are large, and it should be noted that they are much larger than in the models presented in Table 1. I assessed the robustness of the findings by excluding families with more than two children, for reasons already mentioned above, and then with weights that correct for attrition; results were hardly affected (Models 3 to 6).

In summary, I found that an additional year in poverty reduces the likelihood that a respondent says "I cannot afford it" but increases the odds of not having access to one or more goods and services, all other things being equal. Put differently, if two persons live in similar households (size, composition and income) at the end of the period under analysis, the one who spent more time in poverty is more likely not to have access to one or more goods or services, but is also less likely to say that it is so because he or she cannot afford them. The impact of adaptive preferences on the indicators of material deprivation analyzed here does not seem to be very strong, because the two mechanisms – the increased likelihood of not possessing

Table 3   Odds of Not Possessing 1 or More and 2 or More Items in 2007,
                 Binary Logistic Regression

	(1) Does not have 1+ item Exp(β)	(2) Does not have 2+ items Exp(β)	(3) Does not have 1+ item Exp(β)	(4) Does not have 2+ items Exp(β)	(5) Does not have 1+ item Exp(β)	(6) Does not have 2+ items Exp(β)
Ln[1] (after-tax income)	0.204**	0.181**	0.216**	0.199**	0.202**	0.175**
Number of adults in household (18+ years)	1.533**	1.694**	1.536**	1.658**	1.524**	1.710**
Number of children in household (0 to 17 years)	0.946**	0.856**	0.846**	0.772**	0.946**	0.858**
Number of years in poverty between 2003 and 2007	1.787**	1.259**	1.717**	1.321**	1.785**	1.257**
Families with 3+ children included?	Yes	Yes	No	No	Yes	Yes
Weighting corrects for attrition?	No	No	No	No	Yes	Yes
Nagelkerke's pseudo-R^2	0.186	0.224	0.185	0.226	0.189	0.227
Number of cases	957	957	888	888	957	957

[1]   Ln = natural logarithm.
**   Significant at the 1% level.
Source: Swiss Household Panel, own calculations.

one or more items and the concomitant decrease in the odds of saying "I cannot afford these items" – partly offset each other. It needs be highlighted that the effect of the former is much stronger than that of the latter.

5   Subjective Poverty and Adaptive Preferences

While the phenomenon of adaptive preferences does not strongly affect the measurement of material deprivation, at least over a five-year period, it is likely that distortions are larger in the case of purely subjective indicators. This issue is important, because measures of subjective well-being may be included more frequently in social reports after the publication of the "Stiglitz report". Whether or not purely subjec-

tive indicators are strongly affected by the phenomenon of adaptive preferences is the hypothesis I will test in the next section.

The most famous approach to subjective poverty was developed by the "Leyden school" (Van Praag et al. 1980; Colasanto et al. 1984; Kapteyn et al. 1988). These researchers used the minimum income question as the basis to set a poverty line: "We would like you to tell us the absolute minimum income of money for a household such as yours – in other words, a sum below which you couldn't make ends meet" (Van Praag et al. 1980). Respondents who say that their income is lower than the income they deem necessary to "make ends meet" are poor. More specifically, these researchers regressed the answers to the minimum income question on after-tax income and household characteristics (Van Praag et al. 1980):

$$\ln(Y\min) = a_0 + a_1 \ln(Y) + a_2 \ln(HHsize) + \varepsilon,$$

with Ymin the answer to the minimum income question, Y the household's after-tax income and HHsize the household size. If one replaces Ymin by Y in the equation, one obtains a poverty line for each household size (Van Praag et al. 1980; Colasanto et al. 1984; Kapteyn et al. 1988; Saunders et al. 1994).

The main difficulty of this approach is that answers are sensitive to the wording of the question (Colasanto et al. 1984; Saunders et al. 1994; Lollivier and Verger 1997). Moreover, respondents interpret survey questions, ask questions to the interviewer, and give answers they deem to be socially acceptable (Maynard et al. 2002). Indeed, "[a]s subjective survey data are based on individuals' judgments, they are ... prone to a multitude of systematic and non-systematic biases" (Frey and Stutzer 2005, 209). Indeed, many authors have highlighted the lack of consistency of results derived from the subjective poverty line method (Kapteyn et al. 1988; Van den Bosch et al. 1993; Saunders et al. 1994; Strengmann-Kuhn 2003).

In fact, poverty rates based on a subjective threshold are hardly used in social reports. However, answers to income satisfaction questions or to the minimum income question are much more likely to be included, because they are easy to interpret and do not require complicated computations. Hence, it is important to assess whether subjective evaluations of one's financial situation are affected by the phenomenon of adaptive preferences. Moreover, investigating the impact of the adjustment of preferences on the answers to the minimum income question allows to measure this phenomenon in a tangible way. In what follows, I check the hypothesis that the longer the income poverty spell, the lower the income deemed necessary to make ends meet, as has been indirectly observed in the case of Swiss farmers (Crettaz and Forney 2010).

6   Previous Income Poverty Spells and the Minimum Income Question

The minimum income question is formulated as follows (variable H07I54 of the SHP's household questionnaire 2007): "In your opinion, what is the minimum monthly income your household must have in order to be able to make ends meet?" I regressed the logarithm of the answer to the minimum income question on the logarithm of the household's after-tax income, the number of children and of adults in the household, and on the number of years on an income below the at-risk-of-poverty line. The results are presented in Table 4 (Model 1).

Table 4   Determinants of the Answers to the Minimum Income Question
                  (ln[Ymin]) in 2007, OLS Regression

	(1)	(2)	(3)	(4)	(5)
Ln[1] (after-tax income)	0.249**	0.233**	0.246**	0.231**	0.271**
Number of adults in household (18+ years)	0.097**		0.097**		0.089**
Number of children in household (0 to 17 years)	0.086**		0.109**		0.085**
Ln[1] (household size)		0.232**		0.241**	
Number of years in poverty between 2003 and 2007	−0.070**	−0.070**	−0.069**	−0.069**	−0.065**
Families with 3+ children included?	Yes	Yes	No	No	Yes
Weighting corrects for attrition?	No	No	No	No	Yes
R²	0.359	0.366	0.360	0.365	0.367
Number of cases	962	962	893	893	962

[1]   Ln = natural logarithm.
** significant at the 1% level.
Source: Swiss Household Panel, own calculations.

Conclusions are unambiguous: the number of years spent in poverty has a statistically significant impact on the answer to the minimum income question, whatever the income level and the household's size and composition at the time of the last interview. The coefficient is negative, which means that each additional year in poverty reduces the amount of money perceived to be necessary to make ends meet, all other things being equal. More accurately, this amount decreases by 6.8 per cent[3]

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3   A one-unit increase in the number of years spent in poverty decreases the logarithm of the answer to the minimum question by 0.07 units, hence exp(ln(Ymin)−0.07) = exp(ln(Ymin))*ex

after one year, which implies that the bias is large: after five years in relative poverty, the income deemed necessary to make ends meet has decreased by 29.5 per cent[4], which is a very strong reduction.

I checked the robustness of this finding by substituting the household size for the number of adults and children, which is the original approach advocated by the Leyden school. Results are hardly altered (see Model 2), and the coefficient of the variable "number of years spent in poverty" is the same. The other variables have a similar impact in terms of sign and significance. In addition, for reasons indicated above, I excluded families with three children and more from the sample and re-ran both regressions (Models 3 and 4). The coefficient of the variable "number of years spent in poverty" is hardly affected (–0.069 compared to –0.07 in Models 1 and 2), and so are the other regression coefficients. The same conclusions hold when results are weighted to correct for attrition (Model 5): after one year in poverty, the answer to the minimum income question decreases by 6.3 per cent, compared to 6.8 percent in Model 1.

Hence, the minimum income question may not be a good tool to assess financial deprivation. The amount of money perceived as necessary to make ends meet declines by around 30 percent after a period of five years in relative poverty. In addition, it is reasonable to assume that other opinion questions dealing with respondents' financial situation, such as income satisfaction questions, are similarly affected by the phenomenon of adaptive preferences. The main interest of the results presented here is that they allow to quantify the relationship between the duration of a poverty spell and respondents' expectations and aspirations.

7   Conclusions and Methodological Suggestions

7.1   Material Deprivation

The consistency of the results presented in this article allows me to draw a first important conclusion concerning social indicators and social reporting: the problem posed by adaptive preferences appears to be relatively limited in the case of indicators of material deprivation, as the impact of a poverty spell on the odds of saying "I cannot afford it" is relatively limited over a five-year period. More importantly, those who have been in poverty for up to five years are both more likely to lack items and less likely to blame it on lack of income; however, the impact on the number of lacking items is much larger. In sum, I do not think that these indicators, when they are used to assess the extent of deprivation at the national level, are strongly biased by the fact that disadvantaged households end up preferring the goods and services they can afford. In addition, the number of respondents who experience

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4    $p(-0.07) = Ymin*0.9323938$, i.e. Ymin decreases by 6.8 per cent.
$Exp(ln(Ymin)-(5*0.07)) = Ymin*0.7046881$.

long poverty spells is limited thanks to a non-negligible mobility at the bottom of the income distribution (Jäntti and Danziger 2000; Oxley et al. 2000), even though income mobility is usually limited. In the sample I have used, the percentage of persons living in households whose income was below the at-risk-of-poverty line for more than a year (over the five-year period analyzed in this article) amounts to 7.9 per cent.

However, this type of indicators should be used with caution for the analysis of the living conditions of population groups who have had a low income over an extended period, such as Swiss farmers (Crettaz and Forney 2010). Similarly, in comparative analysis, cautious interpretations are called for if the incidence of long-term poverty is much higher in some countries than in others, for instance when comparing Anglo-Saxon with Scandinavian countries (Oxley et al. 2000). Moreover, time series of deprivation rates could be biased downwards if long-term income poverty increases over time. A common sense recommendation is that indicators of material deprivation should be used in tandem with (cross-sectional and longitudinal) income poverty indicators in social indicators research and in social reports. This is indeed the approach advocated by the EU: the list of 2020 indicators includes the at-risk-of-poverty rate and an index of material deprivation. However, including both types of indicators may not suffice to understand the impact of adaptive preferences. Indeed, the limited overlap between income poverty and material deprivation – even at a longitudinal level (Whelan and Maître 2006) – is due to a multitude of other factors including credit and debts, wealth, in-kind benefits and social services (Whelan et al. 2008; Fusco et al. 2011); some researchers also underline that the weakest degree of association between income and material deprivation is found in countries with more generous welfare states (Nolan and Whelan 2010; Kenworthy 2011).

7.2   Subjective Indicators

As far as purely subjective indicators are concerned, the results presented in this article show that adaptive preferences have a strong impact; this implies that these indicators should definitely not be taken at face value. Indeed, the income deemed necessary to make ends meet decreases by about 7 percent after one year in poverty (i.e. on an income below 60 percent of the median) and by around 30 percent after five years. It is reasonable to assume that other opinion questions dealing with respondents' financial situation are similarly affected. This bias is a significant problem for population groups who have had below-average living conditions for an extended period of time.

In addition, it is well known that these indicators are particularly sensitive to the wording of questions and to respondents' interpretations and attributions. The usual recommendation is to use more than one opinion question to assess subjective evaluations, and this is particularly true of perceptions about one's financial situa-

tion. More importantly, it is highly advisable to combine quantitative analyses of subjective survey data with qualitative research; this combination allowed Bourdieu (1979) to demonstrate the existence of adaptive preferences (he did not, however, use this expression).

8 Future Avenues of Research

This article focuses on Switzerland and the number of respondents who have been in poverty for two years or more is quite limited in the SHP sample. It should also be noted that a few respondents may have been poor before 2003. Hence, the results presented above suggest interesting avenues of research.

The first one has already been mentioned, namely to carry out a similar analysis with Eurostat's deprivation index and SILC, in order to check if the phenomenon of adaptive preferences is more pronounced in some European countries than in others, and if clusters of countries can be identified. SILC contains large samples in each member state, and missing income data are replaced with imputed values; this will increase the validity of the analysis. The second avenue pertains to the effects of long-term income poverty on preferences and expectations, but the issue of data availability is not trivial. Third, the models presented above mainly focus on the impact of previous poverty spells, income levels and household composition. However, other important factors should also be analyzed, such as the country of birth, the social origin, or income volatility. Last but certainly not least, qualitative evidence could add to our understanding of the relationship between poverty and expectations, and, hence, of the impact of adaptive preferences on poverty measurement. The combination of ethnographic evidence with a statistical analysis of material deprivation indicators has proven valuable in this regard (Crettaz and Forney 2010).

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