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Does Capability Deprivation Hurt? – Evidence from German Panel Data

Abstract

The present paper explores the link between poverty as capability deprivation and current life satisfaction. Using German panel data, I examine both whether capability deprivation does hurt and whether individuals eventually adapt. To detect capability deprivation I suggest relying on the nonconsumption of commodities pivotal for certain functioning achievements. The results indicate that poverty as capability deprivation reduces life satisfaction in a statistically and economically significant way. Moreover, the results suggest that individuals fail to adapt within the subsequent four to six years.

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1 Introduction

The objective of the present paper is to bridge the gap between the capability approach (CA) and the life satisfaction approach (LSA) on an empirical level. In particular, I make use of the empirical life satisfaction framework and German panel data to examine whether poverty as capability deprivation does hurt. Moreover, I examine whether individuals ultimately adapt to such adverse conditions.

The motivation for the present study is, first, that the CA and the LSA have each a specific notion of human well-being. Thus, how do the two notions relate to each other, conceptually and empirically? The present study provides some evidence on the latter. Second, the issue of adaptation is both of intrinsic interest and critical for linking the capabilities and the life satisfaction literature (cf. Comim (2005, 2008a)). To illustrate the latter: The life satisfaction literature involves the belief that subjective evaluations capture valid, reliable, and valuable information on the respondent's well-being. The CA, in contrast, is deeply sceptical about the use of subjective evaluations of well-being, as these are argued to be prone to various distortions, for example by learning to "have 'realistic' desires and to take pleasures in small mercies" (Sen, 1987, p. 14). Other instructive examples that Sen (1985a, p. 17) puts forward include the "tamed housewife", the "battered slave", the "broken unemployed", and the "hopeless destitute", who all have learned to desire little.[1] Sen (1984b, p. 309) states the critical implications of building on subjective evaluations for normative exercises as follows:

> Quiet acceptance of deprivation and bad fate affects the scale of dissatisfaction generated, and the utilitarian calculus gives sanctity to that distortion.

The present paper examines empirically and precisely whether deprivation indeed affects the scale of satisfaction, i.e., whether individuals quietly accept and do adapt. A third motivation is that so far only a few studies have

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[1]Sen stated his criticisms of the utilitarian approach to welfare (and resource-based and libertarian approaches, as well), on various occasions; some of them are Sen (1984b, 1985a, 1987, 1999, 2008), Sen and Williams (1982). See also Nussbaum (2001a,b).

applied the CA to advanced economies; see Volkert and Schneider (2011) for a survey. Moreover, the German Government's reports on poverty and wealth explicitly build upon the CA as a conceptual framework; see Volkert (2005), Arndt and Volkert (2007). This decision indicates that some conceptual insights the CA provides, such as the intrinsically multidimensional nature of poverty, have become increasingly acknowledged. However, this increasing interest renders intricate measurement issues more urgent, as their proper handling is vital for the CA to be operative. The present paper adds both an empirical exercise applying the CA to advanced economies and a suggestion for how to detect capability deprivations. Finally, there is a debate about the value of regarding poverty as capability deprivation, in contrast with the conventional income-based approaches. The present study adds some evidence from a life satisfaction point of view, by considering whether there is something more to poverty than merely an income below an externally fixed, uniform threshold.

To detect capability deprivation the present paper suggests relying on nonconsumption data regarding goods pivotal for selected functioning achievements. For instance, nowadays, a phone is a pivotal means to socialise, thereby promoting the functioning of participation in social life. A warm meal with meat every other day can be a key part of a healthy diet, thereby promoting the functioning of being well nourished. This example, however, illustrates a flaw of approaches resting solely on (non)consumption data, viz., nonconsumption need not indicate deprivation, but may, for instance, simply indicate a preference instead. Therefore, I additionally exploit information on the reported reason for going without a particular good. More precisely, I argue that going without a pivotal good for purely financial reasons indicates an inadequate income, a notion the CA provides a profound meaning for. An inadequate or insufficient income, in that view, is associated with capability deprivation. This strategy enables us to distinguish between a vegetarian and someone who is *prevented* from eating a warm meal with meat every other day; it is only the latter who has a difficulty and is actually deprived.

The results are as follows: First, capability deprivation does indeed hurt, indicating that the persons affected are well aware of being deprived. More-

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over, poverty as capability deprivation hurts also in an economically significant way, similar to that of widowhood (compared to marriage) or unemployment (compared to employment). Second, the persons affected fail to adapt to poverty as capability deprivation within the four to six years after being placed in that situation. Third, the results suggest that, from a life satisfaction perspective, there is more to poverty than an income below an externally fixed, uniform poverty line.

2   Related Literature

A first related literature is that on the problems of measuring functionings, capabilities, and capability deprivation. Comim (2008b) discusses both, conceptual and practical issues of measurement. See also Leßmann (2011), Anand *et al.* (2009b) for overviews and applications. The exacting informational needs of the CA led critics to doubt that the CA would be usable at all. Comim (2008b, p. 160) summarizes this critique as "that the 'multi-dimensional-context-dependent-counterfactual-normative' nature of the CA might prevent it from having practical and operational significance".[2]

What are, therefore, the applied measurement strategies, particularly for capability deprivation? One approach is to start on the functioning level and collect data on, say, being well-nourished. In case a person exhibits symptoms of malnutrition, he is *assumed* to be deprived. Likewise, observing a person with low or without any years of schooling, she is assumed to be incapable of enjoying more schooling and thus deprived. For instance, Klasen (2000), Anand *et al.* (2005) implement this strategy, but also the construction of the Human Development Index rests on it. Although this approach builds upon a surmise based on functioning-level information, it is nevertheless adequate in many applications (cf. Robeyns (2005) and Sen (1992)).[3]

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[2]For the original critique see Sugden (1993), Srinivasan (1994), Roemer (1996) and Ysander (1993).

[3]To be clear about the conceptual level, two motivations for using data on functionings are not be confused, namely an intrinsic interest and a derived interest – the latter owing to a lack of data. This distinction originates from ours being a capability *approach*, in that it explicitly allows for different exercises. Accordingly, the appropriate space for evaluation

Alternatively, for example, Klasen (2000) employs both functioning data (e.g., years of education) and commodity data (e.g., type of water access, type of sanitation facility, transport to work) to examine deprivation in South Africa. Such an approach, analogously, requires a surmise on the commodity level. For instance, a household without a toilet is assumed to be incapable of obtaining a flush toilet or even a latrine. Moreover, another assumption on the commodity–functioning link has to be made, viz., going without a certain item is assumed to imply some form of deprivation, which by definition is located in the functioning space. Depending on the exercise at hand, this approach may be reasonable as well. The present paper elaborates on this issue.

A second literature explores the CA–LSA link explicitly. Most studies focus on conceptual issues; see in particular Comim (2005, 2008a), Schokkaert (2007a), but also the contributions in Bruni *et al.* (2008). Among other things, this literature identified the adaptation issue as critical for linking the CA and the LSA. Moreover, in particular Anand *et al.* (2005, 2009a) explore the CA–LSA link empirically, also by employing life satisfaction regressions and using data from advanced economies. Beyond some minor technical issues, a major difference is in their prime objective. The present paper focuses explicitly on capability deprivation, whereas Anand *et al.* (2005, 2009a) aim at measuring functioning achievements and capabilities, to prove the CA to be operative. Furthermore, the present paper refrains from explicitly linking the life satisfaction regression to the CA's $h(\cdot)$ or $v(\cdot)$. Instead, this is left for future research.

Third, there is the vast literature on adaptation, originating from different backgrounds and disciplines. Accordingly, the contributions differ significantly in both methodology and focus. Papers methodologically most closely related to the present are Clark *et al.* (2008) and Powdthavee (2009). Both examine adaptation to various events in terms of life satisfaction, and both

is contingent on the exercise at hand. For instance, a study of standards of living has to focus on functioning achievements; an analysis of poverty, on capability deprivation. It is, however, only the latter that discriminates between a starving and a fasting person, although both persons may exhibit the same functioning achievement. See Sen (1985b, 1993), but also Robeyns (2005, 2006).

employ panel data and the respective estimation framework. Clark *et al.* (2008) find, for instance, that we do adapt to divorce, marriage, and widowhood, but that we fail to adapt to unemployment. Powdthavee (2009) provides evidence that we adapt to mild forms of disabilities, whereas we fail to adapt to serious ones. The CA-based studies on adaptation focus more on conceptual issues and implications for normative exercises like evaluation and assessment of well-being, poverty, and the like. See in particular Teschl and Comim (2005) and Clark (2009). Finally, psychological studies of adaptation scrutinize, for instance, the process, domain, and conditions of adaptation; see Frederick and Loewenstein (2003).

3 Commodities and Capability Deprivation

This section discusses briefly the key concepts of the CA, relevant issues of the commodity–functioning link, and the notions of capability deprivation and inadequate income. The section concludes with the informational requirements for valid detection of capability deprivation using consumption data. For a more general treatment of the CA see Sen (1987, 1992, 1999). Introductions and overviews worth reading include Alkire (2002), Robeyns (2005, 2006), and Schokkaert (2007b).

The CA argues that functionings and capabilities are the appropriate materials to assess things like well-being, standard of living, poverty, or inequality, rather than solely relying on income, commodity bundles, or utilities. Functionings are the doings and beings humans have reasons to value, for instance, being well-nourished, being healthy, being sheltered, or participating actively in social and political life. Let the vector $\boldsymbol{b}_i = (b_i^1, \ldots, b_i^k, \ldots, b_i^K)^T$ denote the functioning achievements of individual i with $\boldsymbol{b} \in B$, where $B \subset \mathbb{R}^K$ is the functioning space.

Being able to do or to be something, however, frequently requires resources such as income or, more specifically, commodities. Therefore, let the vector $\boldsymbol{x} = (x^1, \ldots, x^j, \ldots, x^J)^T$ denote a commodity bundle with $\boldsymbol{x} \in X$, where $X \subset \mathbb{R}^J$ is the commodity space. The vector $\boldsymbol{x}_i$, with $\boldsymbol{x}_i \in X_i$, represents a commodity bundle individual i is *entitled* to. Let X_i, with $X_i \subset X$, denote

the *entitlement set* (for short: *entitlements*). X_i is the set of all commodity bundles i can choose from.[4] Each commodity bundle provides *characteristics* $\boldsymbol{c} = (c^1, \ldots, c^l \ldots, c^L) : \mathbb{R}^J \mapsto \mathbb{R}^L$, e.g., a given caloric content, a certain amount of nutrients, but also the material equipment for a social dinner. As a given amount of caloric content can be obtained from various bundles, $\boldsymbol{c}(\cdot)$ fails to be an injective function. Originally, Lancaster (1966, 1971) suggested a linear additive consumption technology as a useful starting point.

Finally, the *conversion* or *utilization function* $\boldsymbol{f} = (f^1, \ldots, f^k, \ldots, f^K) : \mathbb{R}^L \mapsto \mathbb{R}^K$ maps the L characteristics into K functioning achievements. In general, the conversion function $\boldsymbol{f}(\cdot)$ fails to be injective either, allowing for different consumption patterns. For instance, you can achieve social participation using different characteristics such as access to the local sports, access to the internet, or even none of these characteristics at all.

The conversion, however, may vary with so-called conversion factors $\boldsymbol{z_{\bullet}}$, which can be specific to the individual $\boldsymbol{z_i}$, the respective society $\boldsymbol{z_s}$, or the relevant environment $\boldsymbol{z_e}$.[5] Conversion factors that the utilization functions can account for include physical conditions, chronic diseases, social and legal norms, institutional settings, climate, or living in a congested urban area, but also aspects like the distribution of resources within families; see Sen (1999, Ch. 3). To illustrate, consider a paraplegic who fails to convert the ownership of an ordinary car into the same level of the functioning *moving about freely* that an able-bodied person achieves. In sum, (1) describes the commodity–functioning link:

$$\boldsymbol{b}_i = \boldsymbol{f}(\boldsymbol{c}(\boldsymbol{x}_i), \boldsymbol{z}_i, \boldsymbol{z}_s, \boldsymbol{z}_e) \tag{1}$$

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[4]In principle, one could link the capability approach with the so-called entitlement approach more comprehensively. This exercise, however, is beyond the scope of present paper. For the entitlement approach see in particular Sen (1981, 1982). Moreover, Sen (1981) reckons that income is useful to capture entitlements adequately in some cases. In general, however, the two notions are not identical. Nevertheless, for the present exercise I will use entitlement and income interchangeably.

[5]Note that if we focus on the short run or consider a static setting, it is reasonable to treat the conversion factors $\boldsymbol{z_{\bullet}}$ as parameters. In the long run, however, they are affected by behaviour, such as education or migration. Likewise, the conversion factor $z_{\bullet}$ may vary with time.

To acknowledge an individual's freedom to choose what he or she considers to be part of a good life, Sen (1987) introduces the concept of the capability set: the set of all feasible functioning achievements an individual actually can choose from—given her entitlements X_i and given her conversion factors $z_\bullet$. Thus the capability set represents the substantial freedom an individual enjoys. Let Q_i denote the capability set; by definition,

$$Q_i(X_i) = \{ \boldsymbol{b}_i \mid \boldsymbol{b}_i = \boldsymbol{f}(\boldsymbol{c}(\boldsymbol{x}_i), \boldsymbol{z}_i, \boldsymbol{z}_s, \boldsymbol{z}_e), \quad \forall \boldsymbol{x}_i \in X_i \}. \tag{2}$$

Before turning to the concept of capability deprivation, three remarks on the commodity–functioning link, $\boldsymbol{f} \circ \boldsymbol{c}$, are in order. First, the good–functioning link is best considered as a many-to-many function, called a *correspondence* by mathematicians; see also Sen (1984a, 1983). On the one hand, as is seen in

$$\frac{\partial b_i^k}{\partial x_i^j} = \sum_l \frac{\partial f^k(\boldsymbol{c}(\boldsymbol{x}_i), \boldsymbol{z}_i, \boldsymbol{z}_s, \boldsymbol{z}_e)}{\partial c^l} \frac{\partial c^l}{\partial x_i^j} \quad \forall k \tag{3}$$

a commodity j, say food, is conducive to several functionings such as being well nourished, being healthy, and participating in social life. On the other hand, as is seen in

$$d b_i^k = \sum_j \sum_l \frac{\partial f^k(\boldsymbol{c}(\boldsymbol{x}_i), \boldsymbol{z}_i, \boldsymbol{z}_s, \boldsymbol{z}_e)}{\partial c^l} \frac{\partial c^l}{\partial x_i^j} d x_i^j \tag{4}$$

to achieve some functioning k, say being healthy, several different goods, such as a healthy diet, proper sanitation facilities, and an adequate shelter contribute. Second, in general, both the characteristics function $\boldsymbol{c}(\cdot)$ and the conversion function $\boldsymbol{f}(\cdot)$ allow for substitutability among goods and characteristics, respectively. While different commodity bundles may provide the same caloric content, different patterns of consumption may result in social participation. Third, as the derivatives in (3) and (4) illustrate, the commodity–functioning link depends on both conversion factors and other characteristics. For instance, the same diet may result in mal- or supernutrition, depending on whether it is consumed by an adult or a child. Moreover,

this diet may, thereby, render the same adverse sanitary conditions merely unpleasant for one person, but fatal for another.

Summing up, the good–functioning link (i) is best considered as a (many-to-many) correspondence, (ii) is generally characterised by substitutability among both goods and characteristics, and (iii) varies with the conversion factors. Therefore, in general we fail to draw any reliable conclusion about functioning achievements from partial or incomplete consumption data—even when the conversion factors are known. The intuition is that there might always be some other consumption pattern resulting in a particular being and doing, which we, however, do not observe. For instance, merely lacking a meal with meat does not necessarily imply malnutrition.

Sen (1992, 1999) suggests conceptualising of poverty as capability deprivation.[6] Let $\underline{\boldsymbol{b}} = (\underline{b}^1, ..., \underline{b}^k, ..., \underline{b}^K)^T$ denote the vector of critical levels of functioning achievements that a society requires an individual to achieve in order to be considered nondeprived. Let $\boldsymbol{b}_i^* = \boldsymbol{f}(\boldsymbol{c}(\boldsymbol{x}_i^*), \boldsymbol{z}_i, \boldsymbol{z}_s, \boldsymbol{z}_e)$ denote the functioning vector achieved by individual i. Individual i is clearly *nondeprived* if we observe $\boldsymbol{b}_i^* \in \{\tilde{\boldsymbol{b}} \in B \mid \tilde{\boldsymbol{b}} \geq \underline{\boldsymbol{b}}\}$, meaning that each chosen functioning achievement is above the critical threshold. Thus, the vector $\tilde{\boldsymbol{b}}$ denotes deprivation-free being and doing. By contrast, individual i is *deprived* if no such $\tilde{\boldsymbol{b}}$ can be achieved, i.e., $\boldsymbol{b}_i^* \in \{\check{\boldsymbol{b}} \in B \mid \tilde{\boldsymbol{b}} \notin Q_i\}$. Therefore, the functioning vector $\check{\boldsymbol{b}}$ indicates a deprived being and doing. This feature allows us to distinguish between a fasting and a starving person. However, while conceptually convincing, the CA requires at this stage counterfactual information for asserting an individual to be deprived of some being or doing. Did he actually have the choice of an undeprived being and doing? Hence, if we observe an individual with some $b_i^{k*} < \underline{b}^k$, we can only consider her as *potentially deprived* with respect to functioning k. Thus either we directly assume that $\tilde{\boldsymbol{b}} \notin Q_i$, or we do so conditional upon further information, thereby rendering this assumption more reasonable. The present paper pursues the latter

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[6]Although the notion of capability deprivation is an essential feature of poverty, more is needed to identify the (multidimensional) poor, such as aggregation over the dimensions of an individual's well-being. The present paper, however, is concerned with the deprivation aspect only and therefore does not employ a more specific notion of poverty as suggested, e.g., by Alkire and Foster (2011).

approach; it does so, however, in the commodity space.

How does capability deprivation translate into the commodity space? Given a vector $\underline{\boldsymbol{b}}$ and an individual's conversion factors $\boldsymbol{z}_{\bullet}$, this implies a set of commodity bundles that provide the individual a nondeprived being and doing.[7] This commodity set of *nondeprivation* is

$$ND_i = \{\tilde{\boldsymbol{x}} \in X \mid \tilde{\boldsymbol{b}}_i = \boldsymbol{f}(\boldsymbol{c}(\tilde{\boldsymbol{x}}_i), \boldsymbol{z}_i, \boldsymbol{z}_s, \boldsymbol{z}_e) \geq \underline{\boldsymbol{b}}\}. \tag{5}$$

Note that ND_i varies parametrically with $\boldsymbol{z}_{\bullet}$ and might even be an empty set for some individuals. Analogously to the functioning space, an individual not being entitled to any of the deprivation-free commodity bundles $\tilde{\boldsymbol{x}}_i$ *must* be deprived of at least one functioning achievement. Thus the commodity set associated with deprivation is

$$D_i = [\check{\boldsymbol{x}} \in X \mid X_i \cap ND_i = \varnothing]. \tag{6}$$

Whatever commodity vector $\check{\boldsymbol{x}}_i$ i chooses, i has to go without something, and hence i must fail to achieve some functioning. Thus (6) indicates a dilemma: choosing among $\check{\boldsymbol{x}}_i$ is like robbing Peter to pay Paul. As (6) also illustrates, the exclusive focus on income is insufficient to examine deprivation. More specifically, a uniform income-based poverty line is substantially flawed, or, as Sen (1992, p. 111) puts it:

> To have an inadequate income is not a matter of having an income level below an externally fixed poverty line, but to have an income below what is adequate for generating the specified levels of capabilities for the person in question.

Therefore, this capability-based perspective on poverty provides a profound insight into what an *inadequate* or *insufficient* income is, to wit, an income that induces the choice of some $\check{\boldsymbol{x}}_i$. Thus, an inadequate income, on that note, is by definition associated with capability deprivation. Capability deprivation is best understood as the result of a specific configuration of both

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[7]This line of reasoning is similar to the application of the entitlement approach to famines and starvation in Sen (1981, 1982).

conversion factors and entitlements. Therefore, in general, it cannot be said what an inadequate entitlement is without referring to the conversion factors $z_\bullet$. The inadequacy of income is, hence, individual- or group-specific (see Sen (1983)).

From a CA perspective, goods, like incomes, are only of secondary interest. However, there is readily available data on both. What do the previous considerations, therefore, mean for a valid inference of capability deprivation based on consumption data? To infer functioning achievements from consumption data, in general, it is (i) necessary to know the complete commodity bundle x_i^*, owing to the multiplicity of consumption patterns yielding the same achievements. In addition to the consumption information, (ii) technical aspects of the conversion function, such as the substitutability, have to be properly accounted for. The conversion function varies with the conversion factors $z_\bullet$. Therefore, (iii) either more information or additional assumptions on the conversion factors' influence are essential for an inferential exercise as well. Finally, a study specifically interested in capability deprivation, as opposed to low-functioning achievements, (iv) requires information on not-chosen options in the choice set, to wit, counterfactual information.

Against these informational requirements, the present study's approach is characterised as follows: A good is pivotal if its characteristics are key for the society's average consumer to attain some specific functioning level. For instance, phones, mobiles, and internet connections each provide access to commonly used communication networks. To address (i) and (ii), I assume, moreover, the respective component functions $f^k(\cdot)$ to be of a limitational type, in the sense that the average consumer requires the pivotal good for a $b_i^{k*} \geq \underline{b}^k$.[8] Accordingly, nonconsumption of the pivotal good is likely to be accompanied with a $b_i^{k*} < \underline{b}^k$. Regarding (iii), the present approach, though somewhat crude, assumes the good to be pivotal for all relevant $z_\bullet$. A more refined approach, which is left for future research, may allow for specific sub-

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[8]The idea is to avoid precluding other consumption patterns in general. Deviating from mainstream consumption patterns, however, is arguably a deliberate decision the consumer is aware of.

populations. Regarding the counterfactual information (iv), I additionally draw upon the self-reported reason for nonconsumption . Follow-up questions, frequently included in longitudinal surveys, ask for reasons for nonconsumption and allow the respondent to report things like "cannot afford" or "financial reasons". This latter information corroborates the presumption that the nonconsumption of a pivotal good is due to an inadequate income and thus associated with a deprived being or doing.

4   Data and Empirical Strategy

The present study uses four waves of the German Socio-Economic Panel (SOEP), namely, every second year of 2001–2007.[9] Only for these waves can I construct the key explanatory variables. The sample includes all individuals aged 20–65, yielding 56,908 person–year observations of 22,193 respondents.

I construct the key explanatory variables based on questions that ask whether the household owns certain items or conducts certain activities—for instance, whether the household has a phone, whether it has a car, whether it takes a vacation away from home for more than two weeks once a year, or whether it invites friends for dinner at least once a month. Moreover, the households are asked whether they eat a hot meal with meat at least every other day, and whether they put some money aside for emergencies.[10]

How to deal with the inference problem of the previous section? In a nutshell, first, I only consider pivotal goods, i.e., rather uncontroversial goods, that are typically used in the society under consideration to achieve a cer-

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[9]For more details see Wagner *et al.* (2007). The data used in this paper was extracted using the add-on package PanelWhiz for Stata. PanelWhiz (http://www.PanelWhiz.eu) was written by Dr. John P. Haisken-DeNew (john@PanelWhiz.eu). See Haisken-DeNew and Hahn (2006) for details. The PanelWhiz-generated DO file to retrieve the data used here is available from me upon request. Any data or computational errors in this paper are my own.

[10]There are two more items in the SOEP with information on the underlying reason for a potential nonconsumption : internet access and colour TV. However, I do not include them, as the former is asked only in two waves (2005, 2007), while the latter lacks a sufficient number of observations reporting financial reasons for nonconsumption (below 100).

tain functioning; so far I am in line with other studies (e.g., Klasen (2000)). Second, I argue for isolating those persons reporting nonconsumption of an item who have an inadequate or insufficient income, building upon a follow-up question for the reason.

[Table 1 about here.]

Table 1 provides an overview of the pivotal items, the exact wording in the questionnaire, and the associated capabilities somebody *might* be deprived of in case he has to do without. The selection of the associated capabilities is guided by the list Nussbaum (2001b,a) suggests.[11] For example, somebody not eating a warm meal with meat every other day might be deprived of the functioning "being well-nourished".

The answers to these questions, by themselves, fail as indicators of capability deprivation, since going without a meal with meat could simply result from preference as well (e.g., for a vegetarian). In case the respondent reports doing without a particular item, she is additionally asked whether this is caused by *financial reasons* or *other reasons*. The key idea of the present paper is that financial reasons for nonconsumption of a pivotal item indicate that an individual has an inadequate income. This inadequacy of income forces the individual to go without some of the pivotal goods, i.e., to choose a vector $\check{x}_i$. Since pivotal means are missing, the individual therefore fails to achieve the associated functionings, and hence is deprived of fundamental capabilities. To illustrate this further, I suggest that somebody without a phone for financial reasons is severely deprived of being able to participate in social life, as he or she faces (possibly prohibitively) high costs of socializing or staying in contact with peers, friends, or relatives. As another example, a person unable to take a vacation away from home at least once a year is also deprived of a reasonable capability, namely of being able to enjoy a specific, but common type of recreational activity.

[Table 2 about here.]

Table 2 displays the links between (in)sufficiency of entitlements (or income), capability deprivation, and response behaviour. The prime objective is to

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[11]On this issue see also Alkire (2008), Leßmann (2011).

detect those persons with insufficient entitlements (who therefore must be deprived), by reporting financial reasons for going without a pivotal good (case A).

Who might report other reasons for going without? Table 2 distinguishes the deprivation–response link for some further cases. In particular, persons deliberately choosing a diet without meat, or participating in social life by some other activity than inviting friends for dinner, are not deprived and, moreover, are expected to report other reasons (case D). Instead, case E allows for an "austere life-style decision", which, naturally, will impinge upon the chosen commodity vector.[12] Although plausible, their empirical relevance remains a subject of speculation and is left for future research. Note that a reasonable interpretation of the question might possibly cause some respondents to report other reasons, although being truly deprived (case B).

Vital for the present approach, however, is that the reporting of financial reasons is not contaminated by respondents whose decision for nonconsumption originates from some other motivation (cases C–E). But why should, e.g., vegetarians report other reasons for going without meat? The underlying intuition is that doing without a pivotal item is arguably a deliberate decision, e.g., to abstain from using a mobile phone or to deny oneself a vacation away from home. As this consumption pattern, however, is an obvious deviation from the average consumer's, the respondent can be expected to be clear about her motivation and, thus, to report "other reasons". Section 6 discusses some more issues of this kind.

To construct the key explanatory variables I use $j = 1,...,9$ items; the econometric model is

$$LS_{it} = \sum_j (\gamma_j FR_{jit} + \delta_j OR_{jit}) + X'\beta + \epsilon_{it}. \tag{7}$$

General life satisfaction, LS_{it}—i.e., the answers to the question "How satisfied are you with your life, all things considered?"—serves as the dependent

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[12]Sen (1985b, 1993) deals with this issue more generally by differentiating between achieving well-being and achieving so-called agency goals. By making this distinction people are not required to achieve or even maximise well-being; instead, conflicts such as those manifested by persons on hunger strike are explicitly allowed for.

variable. The response is recorded on 0–10 scale with 0 meaning "completely dissatisfied" and 10 "completely satisfied". The key explanatory variables are the FR_{jit}, which equal 1 if item j is missing for individual i in period t due to financial reasons, and 0 otherwise. Likewise, the OR_{jit} equal 1 if item j is missing for i in t for other reasons, and 0 otherwise. Those having the item serve as the reference group.

Expecting capability deprivations to hurt means expecting $\gamma_j < 0$. Things are less clear-cut for the expectation of δ_j, owing to the heterogeneity of motives for reporting other reasons. While a lower life satisfaction is reasonable for cases (B) and (C), as both are deprived, one might expect no effect on life satisfaction for (D) and (E) (why should vegetarians, ceteris paribus, be more or less satisfied?). Thus I expect $\gamma_j \leq \delta_j \leq 0$, depending on the relative importance of the respective groups. However, the expectation on δ_j is of lower priority for the present paper.

[Table 3 about here]

Table 3 provides some descriptive statistics, to wit, the mean life satisfaction and the number of observations by item, by *having the item*, by failing to have the item for *other reasons*, and by failing to have it for *financial reasons*. First, there are some items with cell sizes slightly below 1000 (FR_{meal}, FR_{phone}, and OR_{phone}). In contrast, for other variables ($FR_{emergency}$, $FR_{vacation}$, OR_{dinner}, $OR_{furniture}$) there are more the 10,000 observations each. However, the number of observations Table 3 shows is not the cell size effectively used in estimation. The within-estimator employed requires changes from or to financial reasons, whereas the table also contains person–year observation of individuals solely reporting financial reasons for an item. Broadly speaking, the share of person–year observations by individuals changing their response varies between 50% and 80% (data not shown). Moreover, Table 3 indicates that, in general, having an item is associated with a higher life satisfaction on average. The nonconsumption of an item owing to other reasons is typically associated with a slightly lower life satisfaction on average. However, nonconsumption due to financial reasons is associated with

a 1–1.5-point-lower life satisfaction on average. In sum, the descriptive evidence suggests that capability deprivation may hurt. However, background variables such as employment or income might account for this.

The matrix X contains the usual control variables included in life satisfaction regressions, namely, marital, employment, and health status, the last being captured by a dummy for degree of disability above 30, the logarithm of years of education, dummies for age groups (five-year brackets), and year and region dummies. To control for income, I include the logarithm of real net household equivalence income, using the new OECD equivalence scale.

Adaptation Model

To examine the potential process of adaptation explicitly, I adopt the approach of Clark *et al.* (2008) and Powdthavee (2009). The idea is to split up the treatment group of deprived persons—say, deprived of a dinner with friends—according to their *exposure time*. This approach explicitly uses the SOEP's panel structure, as both the current state of deprivation and a person's point of entry into it have to be observed. Therefore, I introduce the following variables:

$$FR0_{ikt} = 1(FR_{ikt} = 1 \wedge FR_{ikt-1} = 0)$$
$$FR1_{ikt} = 1(FR_{ikt} = 1 \wedge FR_{ikt-1} = 1 \wedge FR_{ikt-2} = 0)$$

In words: the variable $FR0_{ikt}$ equals 1 if individual i is deprived of item k in period t but was not in $t-1$. Thus, $FR0_{ikt} = 1$ indicates that the individual entered this capability deprivation only lately. Accordingly, $FR1_{ikt}$ equals 1 if a person i is deprived of item k in t and $t-1$, but was not in $t-2$. Likewise, I construct $FR2_{ikt}$. However, the sample consists of four waves only, which is why I code $FR1_{ikt} = 1$ if a person was not deprived in $t-2$ *or* $t-3$.[13]

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[13]Alternatively, a slightly different approach requires for $FR0_{ikt} = 1$ not only $FR_{ikt-1} = 0$, but also $OR_{ikt-1} = 0$. Dropping the last condition has the merit of larger treatment and control groups, but entails the cost of a downward bias towards zero. Therefore, the adaptation results represent a lower bound of distress.

Additionally, as the key explanatory variables are available biennially only, I have to assume that between two periods, each indicating a deprivation, this deprivation is present as well. Due to data limitations, I have to confine this exercise to the items k = vacation, dinner, furniture, emergency. Therefore, the second econometric model is, for each k,

$$LS_{it} = \eta_{k0}FR0_{ikt} + \eta_{k1}FR1_{ikt} + \delta_k OR_{ikt}$$
$$+ \sum_{j \neq k} (\gamma_j FR_{jit} + \delta_j OR_{jit}) + X'\beta + \epsilon_{it}. \tag{8}$$

If capability deprivation hurts initially only (i.e., individuals adapt later on), this leads to the expectation for $\hat{\eta}_{k0}$ to be significantly negative and for $\hat{\eta}_{k1}$ to be insignificant.

To obtain the main results I estimate (7) and (8) using a linear fixed effects estimator. There are two merits to this approach. First, the coefficients are straightforward and easy to interpret as marginal effects; second, we are able to control for unobserved heterogeneity (such as personality traits or the interpretation of the response scale). Ferrer-i Carbonell and Frijters (2004) point out the relevance of controlling for fixed effects in life satisfaction regressions in general. For the present exercise, unobserved heterogeneity (e.g., being an extrovert) might matter, as this can be expected to be correlated with social activities (e.g., inviting friends for dinner). Consequently, estimations ignoring fixed effects run the risk of being severely biased.

An objection to the linear estimation is that the ordinal nature of the dependent variable is ignored. Therefore, I estimate (7) also using the conditional logit fixed effects estimator, suggested by Chamberlain (1980). Beforehand, I have collapsed the dependent variable from an ordered 0–10 into a binary one, using the individual means over time as thresholds.[14] Drawbacks of this approach are (i) a considerably smaller sample (observations without variation in the collapsed dependent variable are dropped), and (ii)

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[14]The dependent variable is $LS_{it}^{\text{bin}} = 1$ if $LS_{it} \geq \overline{LS}_i$, where $\overline{LS}_i = \frac{1}{T}\sum_{t=1}^{T} LS_{it}$, and 0 otherwise. This approach can be shown to be an approximation of the estimator Ferrer-i Carbonell and Frijters (2004) suggested. On this see also Kassenboehmer and Haisken-DeNew (2009).

that the marginal effects can no longer be computed (the fixed effects they depend on have just been eliminated). Nonetheless, the conditional logit results provide a useful robustness check for the signs and significance of the coefficients.

5 Results

Columns (1), (2) of Table 4 provide the linear fixed effects results. Columns (1) and (3) serve as benchmark estimations and are not explicitly discussed. First, for eight out of nine items the $\hat{\gamma}_j$ show up significantly negative, indicating that nonconsumption of an item for financial reasons is associated with a lower life satisfaction on average. These items are pivotal means for achieving a certain functioning. More specifically, somebody abstaining from, say, inviting friends for dinner for financial reasons is argued to be less satisfied, because of being deprived of social participation. Hence, the results indicate that capability deprivation does in fact hurt. Second, the similar magnitude of the $\hat{\gamma}_j$, of about 0.2 each, suggests that whatever the inadequate income's manifestation, the associated dissatisfaction is roughly the same.

[Table 4 about here.]

Third, three items, dinner, furniture, and emergency, exert a significant negative influence if missing for other reasons ($\hat{\delta}_j < 0$) as well. Strictly speaking, it must remain unclear what factors drive the $\hat{\delta}_j < 0$ for $j = dinner$, $emergency$, $furniture$. It is, however, suggestive to expect either other constraints (e.g., having no friends to invite), or persons with insufficient incomes, but reporting other reasons, to cause, in sum, significantly lower life satisfaction. Put differently, a $\hat{\delta}_j < 0$ suggests the B and C types of Table 2 to be quantitatively relevant. Additionally, the $H_0 : \hat{\gamma}_j = \hat{\delta}_j$ for $j = dinner, meal, building, furniture$ are rejected at the 1% level of significance, and for $j = car, vacation$ at the 5% level of significance, implying $\hat{\gamma}_j < \hat{\delta}_j < 0$. This finding in turn suggests that individuals using different means to achieve the respective functioning also report other reasons for

doing without inviting friends for dinner (case D of Table 2). Likewise, for $\hat{\delta}_{emergency} < 0$ other constraints or the reporting problem might be important. However, $H_0 : \hat{\gamma}_{emergency} = \hat{\delta}_{emergency}$ cannot be rejected at the conventional levels of significance, suggesting that nobody really likes to go without putting some money aside for emergencies.

Finally, results appear to be somewhat different regarding living in a good neighbourhood. While living in a bad neighbourhood for other reasons hurts ($\hat{\delta}_{hood} < 0$), it does not hurt for financial reasons ($\hat{\gamma}_{hood}$ is insignificant). However, there being too few variation may well account for its insignificance.[15] The significant negative effect of OR_{Hood}, however, might again indicate that either other causes of capability deprivation are at work (e.g., strong and restrictive family relations or work-related obligations). Alternatively, respondents with an insufficient income may, nonetheless, report other reasons.

To account for the ordinal nature of life satisfaction accurately, columns (3), (4) of Table 4 show the conditional logit results. First, the table displays a substantial loss of about 14,800 person–year observations and of about 9,400 individuals. With that said, it is in line with expectation that some coefficients lose their significance, in particular those with rather small cell sizes ($\hat{\gamma}_{phone}, \hat{\gamma}_{car}$). Nonetheless, the pattern appears to be essentially the same as for the linear results. Having to go without other items (as, for instance, dinner, emergency, furniture, or vacation) for financial reasons causes a significant drop in life satisfaction. Moreover, the $\hat{\gamma}_j$ are all of similar size. In comparison with other coefficients (e.g., widowhood or unemployed), the $\hat{\gamma}_j$ indicate a quantitatively similar relative influence to that in the linear framework. All in all, the conditional logit results basically confirm the linear results.

Summarizing: First, the results suggest that it is crucial to distinguish between financial and other reasons when analysing nonconsumption . For eight out of nine items the results indicate a significantly lower life satisfac-

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[15]Out of 1690 person–year observations reporting financial reasons for living in a bad neighbourhood, only 1280 can be employed in the estimation. The reason is that some individuals fail to exhibit within variation. In contrast, out of 3732 person–year observations reporting "other reasons" for living in a bad neighbourhood, 2730 are effectively used.

tion if nonconsumption is owing to financial reasons. Moreover, for seven out of those eight items, either $\hat{\gamma}_j < \hat{\delta}_j$ or even $\hat{\delta}_j$ is insignificant; hence the underlying reason makes a difference. Second, the results suggests that facing the need to go without a pivotal good, given the inadequateness of one's income, is inevitably painful. Finally, the $\hat{\gamma}_j$ display significant negative effects of similar size in the linear and in the conditional logit fixed effects framework.

Turning to the results on adaptation to deprivation, figure 1 illustrates the main finding. Table 5 contains the underlying results, but is not explicitly discussed.

[Figure 1 about here]

The general picture contradicts adaptation to the capability deprivations in question. The impact of being deprived of an associated functioning appears to be the same, irrespective whether one experiences it for a short period only, or for four or more years. Not only is $H_0 : \hat{\eta}_{k0} = 0$ rejected at the 5% level of significance for all items, but also $H_0 : \hat{\eta}_{k1} = 0$.

[Table 5 about here.]

As the items are constructed for every second year, a lower life satisfaction in period 2 indicates that having to go without the item it still hurts after four to six years. Broadly speaking, this preliminary evidence suggests that we do not adapt to being deprived of functionings (e.g., social participation) owing to an inadequate income.

Robustness Issues

A reasonable objection is that the results might only be an artefact of an improper functional form specification of income, especially for the lower tail of the income distribution. The main specification, however, already allows for a decreasing effect of income by using a semilog specification. Nonetheless, I additionally estimate a model including a dummy, $pov60 = 1$, if the household has an income below 60% of the region-specific median equivalence income, and 0 otherwise. Therefore, if ultimately a merely low income

($pov60 = 1$) drives the main results, I expect $H_0 : \hat{\beta}_{pov60} < 0$, while rendering (at least some of) the $\hat{\gamma}_j$ insignificant. Moreover, this specification provides evidence whether there is more to poverty than an income below an external poverty line, from a life satisfaction perspective. If there is more to poverty, at least some of the FR_j should remain significant after the inclusion of $pov60$.

Finally, to elaborate the functional form specification, I estimate a spline function of income, which is more flexible in that it allows for a varying effect of income. As knots I use incomes of 1000, 1500, and 2000, roughly corresponding to the 25th, 50th, and 75th percentiles of the (unweighted) income distribution.

[Table 6 about here.]

Table 6 contains the results; columns (1) and (3) show the benchmark model augmented with $pov60$ and the spline function, respectively. In (1) $\hat{\beta}_{pov60}$ is seen to be significantly negative (-0.1), indicating that an income below 60% of the median income threshold is associated with an additional drop in life satisfaction—on top of the nonlinear effect of income. However, including the key explanatory variables of the present study renders $\hat{\beta}_{pov60}$ insignificant. In contrast, the $\hat{\gamma}_j$ remain basically unchanged, indicating that neither does a *low income* ($pov60 = 1$) drive the results, nor does such a low income capture all aspects of poverty from a life satisfaction perspective (i.e., the pain from going without). In other words, the lowness of income fails to capture its inadequacy. Columns (3) and (4) show the results for the spline function specification, indicating roughly the same marginal effect of income as the semilog specification of the main results[16] and, moreover, that the main results are robust to such a more flexible specification of income. In summary, to examine poverty on an income basis only runs the risk of ignoring sub-

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[16]The implied marginal effect for an income below 1000, the first knot, is a higher life satisfaction by 0.06 points for another €100. For an income between €1000 and €1500, the implied marginal effect is $0.063 - 0.045 = 0.017$ points for another €100. As the semilog specification implies continuously decreasing marginal effects, these lie in between: for an income of €800 (€1100) the marginal effect for another €100 is roughly 0.04 (0.03).

stantial aspects of poverty related to (individual-specific) inadequateness of income.

6 Discussion

Economic significance

Are the results economically significant as well? As a person typically suffers from several deprivations simultaneously (multiple deprivation), the psychic costs add up in a linear framework. For instance, about 90% of the (person–year) observations involve up to four deprivations simultaneously, and more than 50% of the observations involve two to four deprivations. Taking three out of the four most frequent indicators of capability deprivation is therefore associated with a total drop in life satisfaction of about 0.5–0.7 points on the 0–10 scale. Thus, the results imply psychic costs similar to those associated with widowhood (relative to being married) or unemployment (relative to being employed). Moreover, the psychic costs of these capability deprivations accrue on top of those of possible unemployment, disability, or low income.

Adaptation

What do we learn about adaptation? The provided evidence suggests that we fail to adapt to the painful dilemma of going without an item that we require for achieving functionings. This holds for the subsequent four to six years. The present study, therefore, provides new evidence for a failure of adaptation. While Clark *et al.* (2008) find that individuals only fail to adapt to unemployment, Powdthavee (2009) provides evidence against adaptation to serious forms of disability.

Thus this preliminary evidence mitigates the fundamental, though valid, concern about adaptation to deprivation, raised by the CA. Two qualifying points: First, as the implemented strategy exploits within-variation, the data is required to contain information on the situation both before and after entering deprivation. Therefore, some circumstances are difficult if not impossible to examine. While deprivation entered long ago (e.g., in childhood)

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is in principle a question of available data, deprivations over the whole life-time, in contrast, escape from such a within-variation-based analysis. Second, as Teschl and Comim (2005) point out, that adaptation may well vary by domain, because comparing functioning achievements is easier for some than for others (e.g., health is easier to compare than the degree of autonomy in agency). Therefore, generalisations regarding both the domain of and the reason for deprivation should be treated with caution.

Covariates and capability deprivation

How do the other covariates relate to functioning achievements and capability deprivations? Some covariates, like years of education, are suited to capture certain functioning achievements or at least preconditions—at least partially. If properly implemented, other covariates might even capture capability deprivations, which would be a more exacting exercise regarding the information required (information about the options not chosen). For instance, unemployment and serious health problems, as disabilities, are essentially capability deprivations; see Sen (1999, Ch. 4) and Sen (1997) on this.

Moreover, examining capability deprivations appears not to be mainly an exercise in including more explanatory variables; rather it is one of detecting where constraints prevent some individuals from certain functioning achievements—constraints that others are not subject to. Consequently, a more comprehensive assessment of the situation of deprived individuals requires these effects to be considered as well. Nonetheless, the prime challenge is to discriminate between a low-functioning achievement (e.g., due to a deliberate decision) and a capability deprivation. The results suggest further that, for examining poverty-related issues, a focus on income and employment status is too narrow, as the psychic costs the poor bear are ignored.

Pivotal goods

What makes a good or an activity pivotal for relevant functioning achievements? First, being a pivotal good is contingent upon what functionings are treated as relevant. Following the CA, it is not the theorist who, on his own, selects the relevant functionings and capabilities, for an assessment of poverty or the standard of living. Instead, among other things, public discussion and public reason are vital to their selection; see Sen (1992, 2004). Although a list of "central human capabilities", as proposed by Martha Nussbaum (2001a,b) can be disputed, it may well serve as a guide for exercises such as the present one.[17] Second, being a pivotal good critically depends on the structure and organisation of the society in question; see Sen (1983) on this. For instance, nowadays, a mobile phone is a pivotal means to participate in social life, contrary to, say, 40 years ago. Finally, the assumption that the $f^k(\cdot)$ are of a limitational type for the average consumer has to be justified. Only then does lacking the specific good imply a deprivation regarding functioning k.

Do financial reasons provide a meaningful response?

First, as outlined in section 3, the CA provides a profound concept of what inadequate or insufficient income may mean. As a follow-up question for pivotal goods, the present paper argues, financial reasons are suited to indicate such an inadequate income. Second, is it reasonable to expect individuals to respond adequately? As no consequence is attached to the follow-up questions, and the questions are no more intimate than other financial questions asked in the SOEP, strategic or deliberately biased response behaviour seems unlikely. A natural requirement to obtain a meaningful response is, however, to ask for ordinary, familiar items, as only then is the response based on a reasonable evaluation. This requirement, apparently, is similar to that of treating goods as pivotal, in that they are used by the average consumer to achieve a certain functioning, which the present approach builds

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[17]Naturally, the present paper does not claim to study all relevant capability deprivation exhaustively, as the selection is obviously driven by data availability.

on anyway.[18]

Is there evidence beyond this intuition? Table 7 provides some descriptive data: mean income by item and reason. In accordance with intuition, the general pattern is $\overline{inc}_{FR_j} \leq \overline{inc}_{OR_j} \leq \overline{inc}_{jchosen}$. While consuming the respective item is associated with a considerably larger income than nonconsumption for financial reasons, the average income associated with nonconsumption for other reasons lies in between. This evidence suggests not only that persons with an insufficient income are more likely to report financial reasons, but also that some of them report other reasons, thereby indicating the relevance of a potential misinterpretation of the question (cf. section 4, Table 2, case B).

Finally, the main results precisely suggest a significant difference between the underlying reasons for nonconsumption . Broadly speaking, psychic distress is almost exclusively associated with nonconsumption owing to financial reasons. In sum, reporting financial reasons for nonconsumption of a pivotal item, therefore, seems to indicate a meaningful response.

Do financial reasons reflect a preference for leisure only?

Reporting financial reasons may, to the contrary, even go beyond current income to include potential income, thereby capturing productivity aspects. In evaluating whether one can afford something, one may well consider feasible earnings as well as actual earnings. Moreover, the estimation controls for employment status and income. Thus, even if present, such an effect should not contaminate the key results. Finally, this objection is at odds with the finding of economically significant psychic costs, associated with reporting financial reasons for nonconsumption .

Marginal effect of income

What is the marginal effect of income, when simultaneously including information on financial reasons for nonconsumption ? Clearly, to state the

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[18]To illustrate, both requirements (being pivotal and being familiar) were violated by asking whether financial or other reasons account for not having a yacht.

marginal effect of income is tricky, as the γ_j capture the effect of an inadequately low income, whereas β_{inc} captures the "ordinary" effect of income. The results, however, suggest thinking less in terms of a functional specification of one variable (e.g., logs or polynomials), and more in terms of other variables that the marginal effect may depend on (some interaction-effect-like specification). Potential candidates for such an exercise are variables capturing conversion factors.

A related point applies to an external fixed, uniform poverty line. The evidence fails to show a significant effect of an income below that poverty line (beyond the ordinary decreasing effect of income). This result suggests that such a poverty-line-based approach is incapable of accounting for the complexity of deprivation. It is precisely one of the major concerns of the CA not only to understand poverty as capability deprivation, but also to allow for various dimensions of deprivation. The presented evidence therefore supports the CA in this.

Follow-up questions and capability deprivation

The present studies' results suggest that using follow-up questions on the reasons for particular functioning achievements, or their failure, will be fruitful for discriminating between a serious deprivation and the mere result of a preference, or low functioning achievement in general. For instance, a discrimination between the various other reasons allows one to investigate whether adaptation varies with the reason (instilled social norms might be more subtle than financial quandaries). A critical limit for such an approach is, however, a possibly biased response behaviour under certain conditions—for instance, the case of a forced marriage with both spouses living in the household, or a child, though suffering from domestic violence, still living in that household.

7 Concluding Remarks

The present paper explores the link between CA and LSA by asking whether capability deprivation actually hurts and whether individuals ultimately adapt to it. To identify capability deprivation, I require the nonconsumption of goods pivotal for functioning achievement in a given society, and augment this with information on the reported reasons (financial or other). I argue that this information, nonconsumption for financial reasons, indicates a respondent faced with a dilemma, as a deprivation-free commodity vector is beyond her reach, because of inadequate income. Therefore, she has to go without at least one pivotal good and thus is deprived of at least one functioning achievement. The results suggest that such a situation is, literally, a painful dilemma.

More precisely, the results imply statistically and economically significant psychic costs of being deprived of selected functioning achievements, originating from an inadequate entitlement (income). These psychic costs are similar to those of unemployment or widowhood and be incurred in addition to these. The results prove robust to accounting for the ordinal nature of the dependent variable and other functional form specifications for income. On analysing a potential adaptation for a subset of pivotal goods explicitly, the evidence rejects the hypothesis of adaptation within the subsequent 4–6 years. This result suggests that the individuals' scale of satisfaction is not distorted and that individuals neither accept nor quietly adapt.

There are, however, some aspects that limit the generalisation of the nonadaptation results. First, such a study design is confined to situations which in principle provide within-variation. Second, adaptability may vary by domain and reason. Therefore, adding evidence of nonadaptation neither rebuts nor contradicts the general concern for learning to "have 'realistic' desires and to take pleasures in small mercies". Performing similar exercises, we can, however, identify conditions under which the affected persons appear to be clear about their deprived situation, rather than being broken, tamed, or hopeless. Thus, this exercise is not only of intrinsic, but also of instrumental relevance, since conditions under which subjective evaluations

are reliable and resilient are revealed.

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Table 1: Key Explanatory Variables

Variable	Question	Associated potential deprived capabilities
Meal	I eat a hot meal with meat, fish, or poultry at least every other day	**Bodily Health**: Being well-nourished
Car	The household has a car	**Being Mobile**: Being able to move freely
Building	The flat is located in a building which is in good condition	**Shelter** (physical meaning) **Bodily Health**: Not being exposed to adverse environmental conditions **Affiliation**: Having the social bases of self-respect and nonhumiliation
Hood	The building is located in a good neighborhood	**Shelter** (physical meaning) **Bodily Health**: Not being exposed to violent environment **Emotions**: Not having one's emotional development blighted by fear and anxiety
Dinner	I invite friends over for dinner at least once a month	**Affiliation**: Engage in social life
Phone	The household has a telephone	**Affiliation**: Engage in social life
Furniture	Furniture which is worn out but can still be used is replaced by new furniture	**Affiliation**: Engage in social life; Having the social bases of self-respect and nonhumiliation
Emergency	I have put some money aside for emergencies	**Shelter** (social meaning) **Practical Reason**: Engage in planning ones' life
Vacation	I take a vacation away from home for at least one week every year	**Play**: Enjoy recreational activities

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Table 2: Entitlement to goods & capability deprivation

	sufficient entitlement	explanation for nonconsumption	must be deprived	Intuition	Response
(A)	no	not entitled to deprivation-free bundle	yes	'You have to rob Peter to pay Paul'	financial reasons
(B)	no	not entitled to deprivation-free bundle	yes	'I could afford that, given I abandon anything else'	other reasons
(C)	yes	other constraint	yes	e.g., due to a social norm	other reasons
(D)	yes	chose other goods to achieve functioning	no	'I don't need that', 'I don't like that'	other reasons
(E)	yes	functioning not aspired	no	'I devote myself to higher end'	other reasons

Table 3: Mean Life Satisfaction and frequencies by item and reason

|	car	phone	meal	building	hood	emergency	vacation	dinner	furniture
having item	7.08	7.03	7.04	7.09	7.07	7.29	7.33	7.35	7.29
	51596	55580	51925	50529	51486	41368	36912	27500	30468
other reasons	6.78	6.58	6.85	6.61	6.53	6.69	6.87	6.91	7.11
	2147	564	4159	3760	3732	1776	7145	23494	14662
financial reasons	5.96	5.61	5.44	6.00	6.05	6.19	6.17	5.78	6.15
	3165	764	824	2619	1690	13764	12851	5914	11778

Notes: Data from SOEP waves 2001, 2003, 2005, 2007. Cells contain mean life satisfaction and frequencies.

Table 4: Main results

	linear fixed effects				conditional logit fixed effects			
	(1)		(2)		(3)		(4)	
main								
Separated	-0.245**	(-3.27)	-0.154*	(-2.08)	-0.270**	(-2.91)	-0.164	(-1.73)
Single	-0.244***	(-4.47)	-0.205***	(-3.75)	-0.339***	(-4.01)	-0.298***	(-3.50)
Divorced	-0.0134	(-0.20)	0.0636	(0.94)	-0.00835	(-0.09)	0.0793	(0.85)
Widowed	-0.572**	(-3.19)	-0.568**	(-3.20)	-0.561**	(-2.80)	-0.574**	(-2.84)
lneducy	-0.0561	(-0.22)	-0.0937	(-0.36)	0.458	(1.15)	0.424	(1.05)
lnehhNetIncR	0.419***	(13.23)	0.286***	(8.98)	0.496***	(10.82)	0.344***	(7.31)
21-30	0.0465	(0.54)	0.0648	(0.76)	0.0563	(0.48)	0.0659	(0.55)
31-40	0.0745	(0.77)	0.0943	(0.99)	0.0908	(0.66)	0.106	(0.76)
41-50	0.0804	(0.77)	0.105	(1.02)	0.0895	(0.59)	0.110	(0.72)
51-60	0.106	(0.93)	0.129	(1.14)	0.133	(0.78)	0.157	(0.91)
>60	0.223	(1.79)	0.217	(1.77)	0.274	(1.44)	0.271	(1.42)
OLF	-0.125***	(-4.45)	-0.114***	(-4.09)	-0.130**	(-3.14)	-0.123**	(-2.95)
UE	-0.568***	(-13.28)	-0.525***	(-12.47)	-0.662***	(-12.04)	-0.629***	(-11.31)
1.behind	-0.290***	(-5.20)	-0.271***	(-4.91)	-0.290***	(-3.95)	-0.268***	(-3.62)
Phone			-0.0946	(-1.15)			-0.119	(-1.00)
PhoneFR			-0.249*	(-2.55)			-0.191	(-1.58)
Car			0.0105	(0.18)			0.0147	(0.17)
CarFR			-0.139*	(-2.44)			-0.196**	(-2.62)
Hood			-0.122***	(-3.54)			-0.0748	(-1.42)
HoodFR			-0.0172	(-0.30)			-0.0333	(-0.44)
Emergency			-0.197***	(-4.39)			-0.290***	(-4.23)
EmergencyFR			-0.203***	(-7.93)			-0.268***	(-6.80)
Vacation			-0.0528	(-1.95)			-0.0850*	(-2.02)
VacationFR			-0.128***	(-4.63)			-0.161***	(-3.83)
Dinner			-0.0838***	(-4.74)			-0.121***	(-4.12)
DinnerFR			-0.255***	(-7.36)			-0.271***	(-5.45)
Meal			-0.0653*	(-2.09)			-0.130**	(-2.64)
MealFR			-0.274***	(-3.62)			-0.166	(-1.71)
Furniture			-0.0533**	(-3.02)			-0.0590*	(-1.96)
FurnitureFR			-0.210***	(-8.32)			-0.233***	(-6.18)
Building			-0.0153	(-0.47)			-0.0231	(-0.45)
BuildungFR			-0.169***	(-3.53)			-0.214***	(-3.31)
Constant	4.444***	(6.73)	5.693***	(8.58)				
R^2	0.0380		0.0555					
$\bar{R}^2$	0.0377		0.0549					
Obs.	56908		56908		42088		42088	
Ind.	22193		22193		12778		12778	
LL					-15484.4		-15327.0	

Notes: Sample based on SOEP waves 2001, 2003, 2005, 2007; t-statistics in parentheses. Models (1),(2): dependent variable is reported life satisfaction in general on a 0–10 scale, linear fixed effects estimations. Models (3),(4): dependent variable is life satisfaction in general collapsed from 0–10 to a binary variable using individual means over time as threshold, conditional logit fixed effects estimations. All models include year and region dummies. Indicated levels of significance are * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Figure 1: Adaptation and Capability deprivation
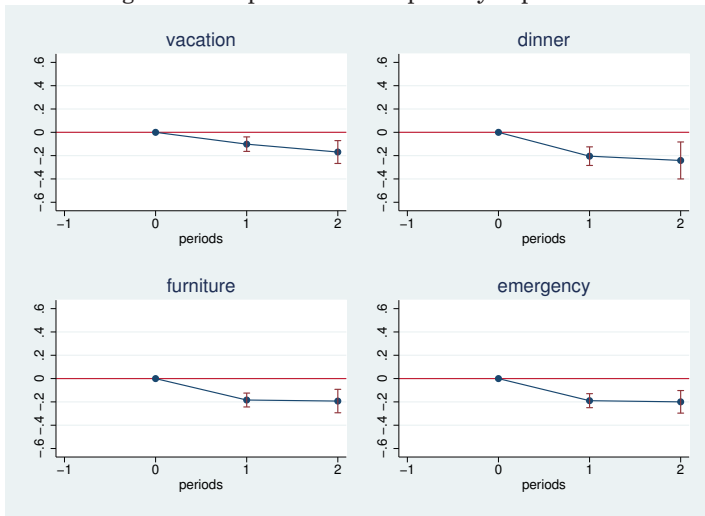
Notes: Each graph based on one regression. See Table 5 for detailed results. Equation (8) is the underlying model, which is estimated using linear fixed effects. Dependent variable is life satisfaction on a 0–10 scale. Confidence intervals are calculated for 95% level. For details see section 4.

Table 5: Results on Adaptation Specification

	(1) vacation		(2) emergency		(3) dinner		(4) furniture	
FR0	-0.101**	(-3.20)	-0.190***	(-6.19)	-0.205***	(-5.03)	-0.184***	(-6.05)
FR1	-0.169***	(-3.38)	-0.200***	(-4.04)	-0.241**	(-2.98)	-0.193***	(-3.76)
Phone	-0.0952	(-1.15)	-0.0885	(-1.07)	-0.0882	(-1.06)	-0.0968	(-1.17)
PhoneFR	-0.251*	(-2.57)	-0.248*	(-2.53)	-0.256**	(-2.61)	-0.253**	(-2.58)
Car	0.0107	(0.18)	0.00952	(0.16)	0.0160	(0.27)	0.0128	(0.21)
CarFR	-0.139*	(-2.44)	-0.146*	(-2.58)	-0.146*	(-2.56)	-0.146*	(-2.56)
Hood	-0.121***	(-3.51)	-0.121***	(-3.53)	-0.123***	(-3.56)	-0.123***	(-3.59)
HoodFR	-0.0174	(-0.30)	-0.0200	(-0.35)	-0.0193	(-0.34)	-0.0197	(-0.34)
Building	-0.0163	(-0.50)	-0.0164	(-0.50)	-0.0180	(-0.55)	-0.0172	(-0.52)
BuildungFR	-0.173***	(-3.61)	-0.173***	(-3.61)	-0.174***	(-3.63)	-0.180***	(-3.73)
Meal	-0.0666*	(-2.13)	-0.0655*	(-2.10)	-0.0642*	(-2.06)	-0.0678*	(-2.17)
MealFR	-0.274***	(-3.63)	-0.278***	(-3.68)	-0.302***	(-4.02)	-0.279***	(-3.68)
Emergency	-0.199***	(-4.43)	-0.170***	(-3.83)	-0.196***	(-4.38)	-0.197***	(-4.40)
EmergencyFR	-0.210***	(-8.22)			-0.210***	(-8.16)	-0.214***	(-8.38)
Dinner	-0.0862***	(-4.88)	-0.0859***	(-4.86)	-0.0617***	(-3.54)	-0.0876***	(-4.96)
DinnerFR	-0.266***	(-7.71)	-0.263***	(-7.59)			-0.271***	(-7.86)
Furniture	-0.0533**	(-3.02)	-0.0545**	(-3.08)	-0.0541**	(-3.06)	-0.0313	(-1.80)
FurnitureFR	-0.214***	(-8.50)	-0.219***	(-8.70)	-0.219***	(-8.67)		
Vacation	-0.0357	(-1.35)	-0.0525	(-1.94)	-0.0546*	(-2.02)	-0.0533*	(-1.97)
VacationFR			-0.141***	(-5.12)	-0.145***	(-5.26)	-0.137***	(-4.96)
R^2	0.0554		0.0549		0.0547		0.0546	
Obs.	56908		56908		56908		56908	
Ind.	22193		22193		22193		22193	

Notes: Sample based on SOEP waves 2001, 2003, 2005, 2007; t-statistics in parentheses. Dependent variable is the answer to life satisfaction in general on a 0–10 scale. All models estimated using linear fixed effects. The underlying model is (8). All models contain the same control variables as in Table 4, including year and region dummies. Indicated levels of significance are * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 6: Robustness Checks: functional specification of income

	(1)		(2)		(3)		(4)	
lnehhNetIncR	0.385***	(11.61)	0.266***	(8.00)				
pov60	-0.105*	(-2.07)	-0.0635	(-1.26)				
ehhNetIncR					0.000945***	(7.51)	0.000634***	(5.05)
knot1					-0.000623***	(-3.75)	-0.000459**	(-2.80)
knot2					-0.000152	(-1.32)	-0.0000621	(-0.55)
knot3					-0.000112	(-1.64)	-0.0000584	(-0.87)
Phone			-0.0927	(-1.12)			-0.0911	(-1.10)
PhoneFR			-0.244*	(-2.49)			-0.243*	(-2.49)
Car			0.0124	(0.21)			0.0108	(0.18)
CarFR			-0.136*	(-2.38)			-0.131*	(-2.30)
Hood			-0.122***	(-3.55)			-0.122***	(-3.54)
HoodFR			-0.0182	(-0.32)			-0.0187	(-0.33)
Emergency			-0.197***	(-4.40)			-0.198***	(-4.41)
EmergencyFR			-0.203***	(-7.91)			-0.203***	(-7.91)
Vacation			-0.0535*	(-1.97)			-0.0557*	(-2.06)
VacationFR			-0.128***	(-4.64)			-0.128***	(-4.63)
Dinner			-0.0837***	(-4.74)			-0.0840***	(-4.75)
DinnerFR			-0.254***	(-7.32)			-0.253***	(-7.28)
Meal			-0.0651*	(-2.09)			-0.0652*	(-2.09)
MealFR			-0.272***	(-3.60)			-0.272***	(-3.60)
Furniture			-0.0535**	(-3.03)			-0.0537**	(-3.04)
FurnitureFR			-0.210***	(-8.33)			-0.211***	(-8.37)
Building			-0.0149	(-0.45)			-0.0145	(-0.44)
BuildungFR			-0.170***	(-3.54)			-0.170***	(-3.54)
Constant	4.717***	(7.07)	5.852***	(8.73)	6.472***	(10.15)	7.073***	(11.06)
R^2	0.0382		0.0556		0.0382		0.0555	
$\bar{R}^2$	0.0379		0.0550		0.0379		0.0548	
Obs.	56908		56908		56908		56908	
Ind.	22193		22193		22193		22193	

Notes: Sample based on SOEP waves 2001, 2003, 2005, 2007; t-statistics in parentheses. Dependent variable is reported life satisfaction in general on a 0–10 scale. All models estimated using linear fixed effects. Models (3),(4) contain a spline function for income. The three knots implemented are €1000, 1500, 2000. All models contain the same control variables as in Table 4, including year and region dummies. Indicated levels of significance are * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 7: Mean Income by item and reason

	car	phone	meal	building	hood	emergency	vacation	dinner	furniture
having item	1803	1751	1744	1788	1772	1910	1979	1908	1918
	51596	55580	51925	50529	51486	41368	36912	27500	30468
other reasons	1338	1323	1776	1448	1503	1558	1548	1704	1777
	2147	564	4159	3760	3732	1776	7145	23494	14662
financial reasons	904	926	994	1143	1140	1236	1142	1064	1213
	3165	764	824	2619	1690	13764	12851	5914	11778

Notes: Data from SOEP waves 2001, 2003, 2005, 2007. Cells contain mean real equivalence net household income and frequencies.