Building the bridge between Protected Needs and consumption corridors

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ABSTRACT

The concept of consumption corridors (CC) provides a fundament for developing sustainable consumption policies. It suggests to determine minima and maxima of consumption. Its implementation would lead to numerous policies covering a broad range of dimensions of consumption. To serve this purpose, the concept must proceed from a broad conceptualization of consumption that convincingly links a human-action lens and a natural-environment lens. The concept of CC is informed by the goal of ensuring quality of life for every human being living now and in the future. Accordingly, quality of life should be the criterion used to justify and determine corridors of consumption. This necessitates firmly linking consumption and a salutogenic definition of quality of life. This article explores how the theory of Protected Needs (PN), a quality-of-life-theory that has been specifically developed for the context of sustainability, contributes to advancing the concept of CC. In addition, drawing on the results of a Swiss survey, we show that embracing the existence of universal and incontestable human needs and endorsing the idea of limiting consumption might be part of the same worldview. The article concludes by identifying conceptual challenges to approach with a view to building a robust bridge from needs to lower and upper limits of consumption.

Setting the stage: the call for sustainable consumption and the concept of consumption corridors

The concept of consumption corridors (CC) is an answer to the call by scientists, environmental movements, and other societal actors (such as Fridays for Future) to transform patterns of consumption with a view to sustainable development. Although the call to change patterns of consumption is far from new (the United Nations voiced it in Agenda 21 in 1992 and repeated it in Sustainable Development Goal (SDG) 12 in 2015), progress has not been especially far-reaching. The current situation was captured by the annual SDG report for 2019 which noted that

Urgent action is needed to ensure that current material needs do not lead to over-extraction of resources and further degradation of the environment. Policies must be embraced to improve resource efficiency, reduce waste and mainstream sustainability practices across all sectors of the economy...Well-designed national policy frameworks and instruments are necessary to enable the fundamental shift towards sustainable consumption and production patterns (UN 2019, 46; see also, Mont et al. 2013; Blühdorn and Deflorian 2020).

There is broad scientific consensus that although policies relying on technological approaches to solve the problems of resource overexploitation, environmental degradation, and pollution are important, a transition to sustainable consumption cannot be achieved by focusing only on technological solutions. Rather, “well-designed national policy frameworks” have to address the behavior of individuals as well (e.g., Fuchs and Lorek 2005; Mont and Plepys 2008; Stern 2017; Spreng 2017; Delina and Janetos 2018; Froemelt, Dürrenmatt, and Hellweg 2018). Such policies have to go beyond “a simple message to ‘consume less’,” because this message “may make metaphorical sense, but...individual decisions to consume less...often have perverse effects such as increased consumption, rebound effects, and higher prices” (Wilk 2010, 40). Furthermore, this message fails to take into account that resources are not fairly distributed—it would therefore not apply to everyone and could even fuel injustice.

The concept of CC aims to provide a fundament for developing policies that lead to sustainable consumption.
consumption by inducing far-reaching changes but do, at the same time, consider justice and neither adopt a narrative of renunciation nor impose specific lifestyles. The concept of CC is meant to inform sustainable consumption governance; it is not an individual policy or policy measure or the like. It offers what Klintman and Boström (2004) call a "symbolic-interpretative construct," and in the terminology of Meadows’ leverage points approach (1999) it addresses deep leverage points. It suggests achieving sustainability in consumption by developing and implementing corridors of sustainable consumption (Blättel-Mink et al. 2013; Di Giulio and Fuchs 2014; Fuchs and Di Giulio 2016; Fuchs 2020; Di Giulio and Defila 2020; Fuchs et al. 2021). Such corridors would be determined by minima and maxima of consumption (see Figure 1). The lower boundaries, the minima, are meant to allow every individual to satisfy his/her needs and to lead a life that he/she values. In other words, they determine what every individual must be provided with both in terms of quantity and quality. The upper boundaries, the maxima, are meant to prevent that acts of consumption of individuals adversely impact the ability of others (living now or in the future) to satisfy their needs. They determine the threshold that if trespassed puts at risk the minima of consumption of others. Thus, the determination of upper levels depends on how the minima are determined and it requires understanding and capturing the impairment of these minima. The space between these boundaries is a corridor of consumption. It demarcates the space of sustainable consumption and leaves room for individual life plans and choices.

Although the concept of CC targets the behavior of individuals, it posits not only an individual, but also a collective responsibility. And on both levels, responsibility is justified by social justice. The concept of CC proceeds from the assumption that natural as well as social resources might be limited and that their quality might be compromised (it thus adopts a precautionary principle).

The aim of this article is to explore in what respect the theory of Protected Needs (PN) can contribute to advancing the concept of CC and to point out the conceptual challenges associated with a view to building a robust bridge from human needs to lower and upper limits of consumption. In a first step, we delineate a definition of (sustainable) consumption that is suitable for the concept of CC. In the subsequent step, we give a very brief introduction of the theory of PN, before drawing on the results of a survey to discuss the contribution of this theory with a view to the concept of CC. Based on this discussion, we describe the theoretical challenges that will have to be mastered to develop a convincing approach that can be used to determine corridors of consumption. In the last section, we draw some conclusions about how the concept of CC could be further advanced.
A conceptualization of (sustainable) consumption suitable for the concept of consumption corridors

The concept of CC claims to be suited for guiding policy design and policy making by providing a basis for sustainable consumption governance. Implementing the concept would thus lead not to single and isolated policy interventions but to numerous policies covering a broad range of dimensions of consumption. In order to serve this purpose, the concept must proceed from a broad conceptualization of consumption, and because the concept targets the behavior of individuals, this conceptualization should be primarily informed by a perspective focusing on human action. Looking at acts and systems of consumption through a human-action lens draws attention to what people in their roles as consumers and as citizens are doing and experiencing, what they believe, and how they perceive and conceptualize things.

The body of approaches to consumption that are informed by such a human-action lens is rather large and diverse. The differentiations that are made depend on the adopted theory (see also Jackson 2005; Kaufmann-Hayoz et al. 2012), and this applies also to whether the focus is on the individual, as for instance in psychology (e.g., Stern et al. 1999; Bamberg and Schmidt 2003; Gaspar 2013) or on the community, as for instance in sociology (e.g., Brand 2008; Anantharaman 2017). Beyond all the differences in how consumer behavior is conceptualized in the different approaches, they share the aim of gaining a comprehensive understanding of consumption. This includes, for instance, the conditions to change consumption (e.g., Visschers et al. 2009; Shove 2010), the power relations that influence consumption (e.g., Fuchs and Lorek 2005), the degree of freedom to perform (or how to perform) a specific act (e.g., Kaufmann-Hayoz et al. 2012), and also whether and how individual policies addressing consumption are approved by people in their role as citizens and/or implemented in peoples’ consumer behavior (e.g., Aschemann-Witzel, Bech-Larsen, and Capacci 2016; Ellabban and Abu-Rub 2016; Ingold, Stadelmann-Steffen, and Kammermann 2019; Leijten et al. 2014; Upham, Oltra, and Boso 2015). In sum, the social sciences and the humanities provide a highly differentiated body of approaches and evidence, but there are some points about consumption that are, despite the differences, common ground:

- Consumption cannot be reduced to buying stuff but consists of different, although interlinked, acts. Developing preferences is part of acts of consumption as well as selecting consumer goods, acquiring them, using or consuming them, storing them, and disposing of or forwarding them. Consumption also encompasses acts of reprocessing consumer goods (prosuming). Products are only one type of consumer goods, the others being services and (material as well as non-material) infrastructures. That is, consumption is not limited to direct consumption but covers indirect consumption as well. All acts of consumption are embedded in social, cultural, and material (socio-technical and socio-spatial) contexts.
- Acts of consumption are not ends in themselves, but serve functional and symbolic purposes, that is, “people pursue cultural constructs like comfort, convenience, hygiene, nutrition, and necessity, and buying and using energy and materials are just means to those ends…People by and large do not consume for the sake of consumption itself—they are always doing it to achieve some other end” (Wilk 2010, 46). The end in itself is to organize one’s daily life and to live a life that is perceived to be valuable, that is, the end in itself is to achieve quality of life (e.g., de Vries and Petersen 2009; Poortinga, Steg, and Vlek 2004). Acts of consumption may have a higher or lower significance with a view to the different purposes, that is, they may be more or less essential, and the purposes as well may be more or less essential. Consequently, a comprehensive approach to consumption acknowledges that the importance of purposes differs across individuals, and it distinguishes purposes and means. With regard to means it makes sense to distinguish at least 1st order means and 2nd order means depending on how directly the means are linked to purposes (1st order = directly linked to purposes, 2nd order = indirectly linked to purposes). The impacts (on the natural environment and on other people) of consumption are not caused by the purposes but by the means and should therefore conceptually be linked to the means.
- Changes in consumer behavior are not limited to just one single act but affect the entire fabric of how people organize their daily life and achieve their purposes (e.g., Defila, Di Giulio, and Ruesch Schweizer 2018). Accordingly, whether policies targeting change are accepted and implemented depends on whether the required acts can easily be accommodated into peoples’ everyday lives and on whether the impacts of these acts are compatible with the organization of their everyday lives and their personal idea of a fulfilled life (e.g., Blättel-Mink et al. 2013, 91ff and 131ff; von Borgstede, Andersson, and Johnsson 2013).
Acknowledging quality of life as the final purpose, the end in itself, of consumption provides a common denominator for consumption and sustainability. Sustainability is a salutogenic concept (a salutogenic approach is a “broad academic movement toward a positive perspective on human life,” see Mittelmark and Bauer 2017) because it posits ensuring need satisfaction and quality of life for present and future generations as the goal of societal development both on a national and a global level—and not providing remedy for damage and deprivation (e.g., WCED 1987; Manstetten 1996; Di Giulio 2004; Rauschmayer, Omann, and Frühmann 2011; Vanhulst and Beling 2020). The definition of sustainability by the United Nations requires that quality of life is defined, and it implies that quality of life is defined in terms of need satisfaction. Accordingly, in the context of sustainability, most scholars, in defining quality of life, adopt a needs approach (or a similar approach, such as the capability approach, or a hybrid approach combining needs and capabilities) and draw on the existence of universal human needs (e.g., Jackson, Jager, and Stagl 2004; Robeyns and van der Veen 2007; Costanza et al. 2007; Gough 2015). Adopting a needs approach leads to distinguishing between needs (purposes that cannot be further reduced and cannot be substituted) and satisfiers (means used to satisfy needs) (e.g., Doyal and Gough 1991; Max-Neef, Elizalde, and Hopenhayn 1991). The notion of satisfiers covers actions, products, structures, institutions, services, infrastructures, and so forth; it refers to both material and non-material means. In contrast to needs that are assumed to be universal and stable, satisfiers are dependent on historical and societal contexts and unstable (e.g., Jackson, Jager, and Stagl 2004; Soper 2006). Satisfiers are, by some scholars, classified according to their potential of actually satisfying needs (e.g., Max-Neef, Elizalde, and Hopenhayn 1991; Jackson, Jager, and Stagl 2004; Cruz 2011; Rauschmayer, Omann, and Frühmann 2011).

Because quality of life is a common denominator of consumption and of sustainability, these approaches to quality of life in the context of sustainability can be applied to consumption and to sustainable consumption. Applied to consumption they add to a differentiated and comprehensive conceptualization of consumption (see Figure 2). Applied to sustainable consumption they suggest that sustainable consumption should be defined by referring to need satisfaction (and this includes adopting a salutogenic approach, see e.g., Fischer et al. 2012). Finally, applying these approaches points out that consumption is only indirectly linked to natural or social resources. Using

![Figure 2](image-url)

**Figure 2.** A comprehensive approach to consumption distinguishes purposes (needs) and means. With regard to means it distinguishes at least 1st order means (satisfiers, linked directly to purposes, and comprising both what people do (acts) and what they make use of in their doings (consumer goods)) and 2nd order means (resources, linked indirectly to purposes). Money for instance is a social resource (2nd order means). This resource can be used to buy a diversity of consumer goods (1st order means), such as cars, treatment by a dentist, clothes, food and drink, drugs, tattoos, visiting a brothel (“Puff”). These goods are used for a diversity of acts (1st order means), such as changing one’s perception by drugs, getting from one place to the other by car, putting on socks, or drinking a beer with a friend. These acts finally serve different purposes, such as escaping reality, broadening one’s horizon, getting cured, showing off, or having warm feet—and some of these purposes are needs (not further reducible and not substitutable), while others are constructs of wanting that cannot claim the same status as needs.
resources is not a need and thus not a purpose of consumption. Resources are not satisfiers, although satisfiers do, of course, depend on and affect resources. That is, resources are, as a rule, 2nd order means, while what people do (acts) and what they make use of in their doings (consumer goods) are both 1st order means. This is backed by empirical research showing that “a concern for energy usage, in relation to limited nonrenewable resources and global impacts such as climate change is simply not a register that people draw from to make sense of their everyday lives” (Sahakian and Bertho 2018, 87).

These theoretical and empirical achievements must be taken into account in the concept of CC. This means that in fleshing out the concept of CC the complexity of consumption should be acknowledged in terms of not reducing consumption to single acts of consumption (or even to single consumer goods) and of not separating acts of consumption from the different layers of social interaction and from the structures in which they are embedded. It also means that the significance of purposes of consumption has to be acknowledged and that the significance of quality of life as both the final purpose of consumption and the crucial criterion of sustainable consumption has to be observed. At the same time, and against the background of the assumed exhaustibility and vulnerability of resources, it is necessary to distinguish legitimate from non-legitimate satisfiers (actions, products, structures, institutions, services, infrastructures, and so forth) and the notion of quality of life has to be used as a criterion to make this distinction (see, for a more in-depth discussion, Di Giulio, Defila, and Kaufmann-Hayoz 2018; Di Giulio et al. 2012).

The contribution of Protected Needs to the concept of consumption corridors

The concept of CC proceeds from the goal of ensuring a good life in terms of quality of life for every human being that is living now and in the future. This requires identifying those purposes of consumption that can serve as criteria to justify the concept and to determine corridors of consumption. In line with the general scholarly debate about quality of life in the context of sustainability (see above), this should be based on a theory of quality of life that provides a list of needs that can be used for this purpose (see also Gough 2020).

In this section, we discuss what the theory of Protected Needs (PN) could contribute to the concept of CC and outline the limits of this theory with a view to determining corridors of consumption. After a very short introduction to the theory of PN, we use data from a representative survey conducted in Switzerland to describe the potential and the limits of this theory.

The theory of Protected Needs

Based on a literature review and collaboration with an interdisciplinary advisory board, we developed a theory of the ‘good life’ for the context of sustainability: the theory of PN.2 We suggest operationalizing quality of life for the context of sustainability by nine Protected Needs (Di Giulio and Defila 2020). Protected Needs are needs that (1) deserve special protection within and across societies because they are crucial to human wellbeing, and are, at the same time, (2) needs for which special societal protection is possible, because they are needs for which a governmental/community responsibility can reasonably be assigned. If sustainability governance shall be informed by a needs approach and if it shall adopt not a national but a global perspective, such needs must be both, universal and context sensitive. Additionally, such needs must be more than just titles, that is, they must provide a “thick theory” of quality of life. As Kate Soper (2006, 361) has observed, “in general, the less information the ‘thin’ theory provides, the less controversial it will be, but also the more difficult to draw on as a guide to policy formation… For these reasons, the more interesting and policy relevant universalists will want to insist that universality extends beyond this minimum.” For these reasons, our proposal covers both, universal needs and for each need a thick description. The list of Protected Needs consists of nine universal needs that are arranged in three groups (Table 1, left column) and are specified by thick descriptions (Table 1, right column).3 The thick descriptions serve as a starting point for their cultural and historical adaptation.

The theory of PN does not claim to provide a comprehensive definition of quality of life. It claims to provide a salutogenic definition of quality of life that is both sound and useful to flesh out quality of life for the context of sustainability and with a view to grounding responsibilities for individuals, communities, and governments on the subnational, national, international, and global level. Compared to other definitions of quality of life, the theory of PN combines a number of advantages. The most important ones are that it is designed especially to focus only on needs for which a societal responsibility can be reasonably assigned, that it avoids...
including satisfiers in defining needs, and that it provides a “thick theory” of quality of life. Meanwhile, the list of Protected Needs has been used in qualitative research in four Asian cities (Chennai, Metro Manila, Shanghai, and Singapore) to explore how green public spaces act as satisfiers with regard to these needs. This research has shown that this list of needs can indeed be used outside the cultural context in which it has been developed (Sahakian et al. 2020).

The potential of the theory of Protected Needs for the concept of consumption corridors

The theory of PN claims to provide a definition of quality of life that can be used in the context of sustainability. The concept of CC seeks to serve as a fundament for developing policies that lead to sustainable consumption. Hence, in both cases coherence is a necessary but not yet sufficient condition. Rather, both the concept of CC and the theory of PN must also resonate with people. In order to find out to what extent this is the case, we subjected both the concept of CC and the theory of PN to a representative survey in Switzerland. In the subsequent sections, we first present the questionnaire and the sample of this survey. Second, based on a summary of our findings to date and on new data analysis, we argue that the theory of PN can be used as the point of reference to justify the concept of CC and to determine corridors of consumption.

Table 1. The list of Protected Needs (Di Giulio and Defila 2020).

| Group 1, focusing upon tangibles, material things (Protected Needs 1–3) |
|---------------------------------------------------------------|
| **Need (what individuals must be allowed to want)** | **Specified description: Individuals should have the possibility …** |
| 1) To be provided with the material necessities for life | …to feed themselves sufficiently, with variety, and with food that is not detrimental to health. |
| | …to live in a suitably protected and equipped accommodation, offering privacy and sufficient space and allowing them to realize their idea of living. |
| | …to care for their bodies with dignity and dress suitably. |
| 2) To realize their own conception of daily life | …to shape their daily life according to their own ideas. |
| | …to procure and use the material necessities for life from a diverse range of supply, and to have sufficient means to do so. |
| 3) To live in a livable environment | …to live in an environment (built and natural) that is not harmful to health and is aesthetically pleasing. |
| | …to develop a sensorial and emotional relationship with nature. |
| | …to have access to and be able to move about in diverse natural and cultural landscapes. |

| Group 2, focusing upon the person (Protected Needs 4–6) |
|---------------------------------------------------------------|
| **Need (what individuals must be allowed to want)** | **Specified description: Individuals should have the possibility …** |
| 4) To develop as a person | …to develop their potential (knowledge, skills, attitudes, feelings, and so forth) and thus their individual identity. |
| | …to face the challenges of their choice. |
| 5) To make their own life choices | …to freely access reliable information and thus form their own opinion. |
| | …to decide and act upon the value-orientations they choose to adopt or reject (spirituality, religiosity, ideology, and so forth). |
| | …to set their own life goals and pursue them. |
| | …to determine how they want to lead their life in terms of intimate relationships, family planning, where to live, and so forth. |
| 6) To perform activities valuable to them | …to carry out activities that they consider to be fulfilling (in work and leisure; paid and unpaid). |
| | …to have sufficient means to do so. |
| | …to allocate their time for their different activities according to their own preferences and to have time for idleness. |

| Group 3, focusing upon community (Protected Needs 7–9) |
|---------------------------------------------------------------|
| **Need (what individuals must be allowed to want)** | **Specified description: Individuals should have the possibility …** |
| 7) To be part of a community | …to maintain social relationships with other people (private, professional, during training, and so forth). |
| | …to take part in cultural activities and celebrations and to participate in associations. |
| | …to access the cultural and historical heritage of their community. |
| 8) To have a say in the shaping of society | …to freely decide and act upon the value-orientations they choose to adopt or reject (spirituality, religiosity, ideology, and so forth). |
| | …to set their own life goals and pursue them. |
| | …to determine how they want to lead their life in terms of intimate relationships, family planning, where to live, and so forth. |
| 9) To be granted protection by society | …to have access to and be able to move about in diverse natural and cultural landscapes. |
| | …to be protected from public and private violence, from infringements on physical and mental integrity, and from natural hazards. |
| | …to pursue their goals without discrimination and with equal opportunity, to live in legal certainty, and to be treated with dignity and respect. |
| | …to be supported in the event of physical or mental impairment, unemployment, poverty, and other impairing conditions. |
The questionnaire and the sample

The questionnaire that we used in our survey consisted of twenty questions in total. Q5–Q10 were devoted to the theory of PN and Q11 to the concept of CC.

Respondents were asked about the individual (subjective) importance of each of the nine Protected Needs for their own life (Q5) and about their possibility to satisfy each of these nine needs regardless of the importance they attach to them individually (Q6).

We wanted to know whether respondents concede the nine Protected Needs to others and to what extent they perceive them to be contestable (Q7 and Q8; for their rationale see Defila and Di Giulio 2021): Respondents were asked how important they think these needs to be with a view to human wellbeing in general. This was done by asking them for each of the nine Protected Needs whether they think it to be imperative that people can make it impossible for different groups of people to satisfy this need (Q7; 7-point scale: 1 = is not imperative, 7 = is imperative, 2-6 not labeled). Then, for each of the nine Protected Needs the respondents were asked whether they think it to be blatantly unjust if circumstances (such as lack of money, forbidden by family or religion, non-supportive environment, not being allowed by law) make it impossible for different groups of people to satisfy this need (Q8; scale was five groups of people that were presented as an increasing scope of persons: for no one; only for Swiss citizens; also for foreigners living in Switzerland; also for refugees and undocumented migrants living in Switzerland; for people living all over the world). That is, in answering Q8, respondents could adopt a national perspective (unjust only for Swiss citizens), a territorial perspective (unjust for all people living in Switzerland), or a global perspective (unjust for people living everywhere in the world).

We wanted to find out to what extent the nine Protected Needs ground a sense of ethical obligation of contributing to the possibility of other human beings satisfying these needs (Q9 and Q10, 7-point scale: 1 = not obliged at all, 7 = strongly obliged, 2-6 not labeled; for their rationale see Defila and Di Giulio 2021): Respondents were asked, for each of the nine Protected Needs, to what extent they feel obliged as an individual to contribute to the possibility of other people satisfying this need (dimensions of recipients they had to consider: present generations in their own country, future generations in their own country, future generations all over the world) (Q9). Respondents were asked, for each of the nine Protected Needs, how much they think the Swiss society is obliged as a community to contribute to the possibility of people to satisfy this need (dimensions of recipients they had to consider: present generations in their own country, present generations all over the world, future generations in their own country, future generations all over the world) (Q10).

One question was devoted to the concept of CC (Q11; for its rationale see Di Giulio and Defila 2020). In order to find out how the concept is received in society, we inquired into the openness of the respondents to endorse the concept (scale: seven deliberative spaces in which respondents had to position themselves in their role as citizens, see Appendix A).

The other questions concerned age (Q1), gender (Q2), residence (canton only; canton question was positioned after Q2), general life satisfaction (Q3; accompanied by an open Q4 asking what the respondents deemed to be crucial to a high quality of life), political attitude (Q12), altruism (Q13, altruism scale see Appendix B), current activity (Q14), education (Q15), income (Q16), number of persons living in the same household (Q17), and nationality (Q18, Q19). Q20 was an open question asking for comments.

We administered the questionnaire as an online survey (using computer-assisted web interviewing, CAWI). It was fielded in October 2016, and took respondents approximately 25 minutes in total to complete. The thick descriptions of the single needs (Table 1) were introduced in Q5 and subsequently provided as pop-ups.

The respondents (N = 1059) were recruited via an online-access panel. The process was managed by M.I.S. Trend, a Swiss institute providing services for qualitative and quantitative surveys. To build a representative sample for Switzerland, we applied quota sampling (crossed quota) using the combined criteria of age, gender, and linguistic region (German-speaking and French-speaking parts of Switzerland, covering 25 out of the 26 cantons that are the member states of the Swiss Confederation). The quota used to build the sample match the distributions in the Swiss population (aged 18 and older; not covering the Italian-speaking part of Switzerland, that is, one of the 26 Swiss cantons; see Appendix B, Table B1). Because respondents from the French-speaking part of Switzerland were slightly overrepresented in the sample relative to the overall Swiss population, the answers were weighted in the data analysis.

The sample consists of 50.9% women and 49.1% men. The average age of the respondents is 47 with an age distribution as follows: 2.1% of the respondents are aged 18–19, 34.2% are aged 20–39, 47% are aged 40–64, and 16.7% are 65 or older (with a distribution ranging from 18 to 84). The sample shows...
a distribution by citizenship status that is relatively similar to the distribution in the Swiss population (86.1% Swiss citizens (including dual citizenship) and 13.9% non-citizens; Swiss population in 2015 comprised 76.1% Swiss citizens (including dual citizenship) and 23.9% non-citizens). The sample is fairly comparable to the Swiss population also in terms of size of household (with most of the respondents, 66.6%, living in single-member or two-person households; Appendix B, Table B2), political attitude (with most respondents, 43.8%, adopting neither a pronounced left-wing attitude nor a pronounced right-wing attitude; Appendix B, Table B3), and diversity with regard to education (Appendix B, Table B4) and income (Appendix B, Table B5).

Protected Needs as point of reference to justify the concept of consumption corridors and to determine corridors

The results of our inquiry into the perceived incontestability and universality of the Protected Needs can be summarized as follows (Q7 and Q8, for details see Defila and Di Giulio 2021): All nine Protected Needs are attributed a rather high importance with a view to quality of life in general. We asked about injustice to inquire into whether the Protected Needs are perceived to be universal human needs and incontestable human needs. The results show that each of the nine Protected Needs is perceived to be contestable only by a small minority of respondents, because for each of the nine needs only a small minority thinks that it is not unjust if circumstances prevent someone from satisfying this need (<13% for all Protected Needs, but for PN 7 where the percentage is 15.9%). That is, a vast majority of respondents perceive the nine needs to be incontestable. But for a part of them the incontestability of these needs is limited with regard to its scope, because they adopt a territorial or even national perspective in judging unfairness (depending on the particular Protected Need, 10–19% of respondents adopt a national perspective, 29–45% a territorial perspective, and 43–62% a global perspective). For those adopting a territorial or national perspective, the incontestability does not reach beyond their own country. For each of the nine Protected Needs we can identify those respondents that perceive this need to be a universal and incontestable human need. And we can also identify those that regard this need to be crucial to human wellbeing. We can, in other words, for each of the nine needs, distinguish those respondents for which the need is up for negotiation from those for whom the need is not up for negotiation.

We wanted to know whether these two types of respondents react differently to the concept of CC. To this end, we related the respondents’ reactions to the nine Protected Needs in terms of how they perceive their importance, universality, and incontestability to their openness to endorse the concept of CC (this is the latent factor reflected by the items used in Q11, see Defila and Di Giulio 2020 and Appendix A). We built three groups of respondents and compared their openness to endorse the concept of CC (Table 2):

- Group 1 = all nine Protected Needs are negotiable (it cannot be decided whether these respondents reject the notion of PN or whether they disagree that the nine needs on the list deserve the status of being crucial, universal, and incontestable)
- Group 2 = at least one of the nine Protected Needs is not negotiable
- Group 3 = none of the nine Protected Needs is negotiable

The mean value (M) and the standard deviation (SD) in Table 2 show the openness to endorse the concept of CC (Q11, scale see Appendix A) of these three groups. Welch’s unequal variances three-samples t-test showed that the difference is statistically significant (Welch-Test F(2, 185.602) = 23.442, p < .001): p < .001 applies to the difference between M Group 1 and M Group 2 and Group 3; p < .05 applies to the difference between M Group 2 and M Group 3. The mean openness to endorse the concept of CC (M) of Group 1 is 4.0030, whereas M of Group 2 is 4.5147, and M of Group 3 is 4.9508 (Table 2). Those respondents that either reject the notion of PN or disagree that the nine needs on the list of Protected Needs deserve the status of being crucial, universal, and incontestable (Group 1) are significantly less open to endorse the concept of CC than the other two groups. The openness is the

| Groups of respondents | M     | N     | (SD)  |
|-----------------------|-------|-------|-------|
| Group 1 (all nine needs are up for negotiation) | 4.0030** | 282   | 1.22436 |
| Group 2 (at least one need is not up for negotiation) | 4.5147*  | 528   | 1.09707 |
| Group 3 (none of the needs is up for negotiation) | 4.9508*  | 73    | 1.38043 |
| Total of respondents included in Group 1, Group 2, and Group 3 | 4.3873   | 883   | 1.19817 |
| Missing               | 176   |       |       |
| Total number of respondents | 1059  |       |       |

*p < .05; **p < .001.
highest among respondents for whom all nine Protected Needs are not negotiable (Group 3).

That is, embracing the existence of universal and incontestable human needs and endorsing the idea of limiting consumption might be part of the same worldview (or mindset). And this worldview is, at least in Switzerland, not exotic or utopian (this conclusion is supported by the finding that in Switzerland there is a slightly positive openness to endorse the concept of CC and the concept is controversial but not polarizing, see Di Giulio and Defila 2020).

Based on all these results, we conclude that the theory of PN could be used as the point of reference in justifying the concept of CC and could provide the criteria for determining corridors of consumption. This conclusion can be further substantiated by our findings on whether the nine Protected Needs ground a sense of ethical obligation of contributing to the possibility of other human beings satisfying these needs. These findings can be summarized as follows (Q9 and Q10, for details see Defila and Di Giulio 2021): It would not be appropriate to adopt a binary approach in judging perceived obligation. Rather, people can feel more or less obliged. We interpret choosing values above 4 to be an expression of feeling obliged. Based on this, the results of our inquiry show that respondents posit both an individual and a shared obligation with regard to warranting each of the nine Protected Needs because a larger number of respondents chose values above 4 to express their feeling of obligation (for both agents, individuals, and communities). And they did so with regard to all four dimensions of recipients (present generations in their own country, present generations all over the world, future generations in their own country, future generations all over the world). In other words, they perceive both themselves as individuals and their community (the Swiss society) as agents that are obliged to warrant the possibility of satisfying the nine Protected Needs but with the distinction that they attribute a stronger obligation to the community than to the individual. That is, although these needs are needs of individuals, ensuring that they can be satisfied is perceived to be a social responsibility as well. The attributed obligation diminishes the more the recipients are distant in spatial and temporal terms. In other words, the respondents report feeling more obliged toward present and future generations in their own country than toward present and future generations all over the world.

In sum, the theory of PN can be used to flesh out the concept of CC. Applying it would work as follows. Protected Needs are those purposes of consumption that are essential. They serve as criteria to justify and to determine corridors of consumption. The lower boundaries establish what must be provided for each human being in order to give him/her the possibility to satisfy those of his/her constructs of wanting that belong to the list of Protected Needs. The upper boundaries prevent consumption that adversely impacts the ability of other individuals that are living now or in the future to satisfy their Protected Needs. The thick descriptions of the needs are the starting points to determine what people need for their satisfaction in terms of 1st order means (satisfiers) and 2nd order means (resources).

But this is not sufficient for determining corridors of consumption. The yet unresolved question is: What exactly is delineated by the lower and upper limits? More specifically, what satisfiers and/or resources must be limited (in other words, what is in the corridors)? The importance of satisfiers and/or resources with a view to need satisfaction is one aspect that must be considered in answering this question, but it would be wrong to assume that all satisfiers and/or resources that are important must be limited, and it is obvious that the importance by itself does not lead to limits. Rather, additional aspects, such as the assumed exhaustibility and vulnerability of resources must find their way into the equation. Such aspects, in turn, are not covered by the theory of PN.

**Determining corridors of consumption: theoretical challenges to address**

In order to determine corridors of consumption, the theory of PN must be complemented by approaches that allow both to identify those satisfiers and/or resources that must be captured by the lower and upper limits of consumption and to calculate (quantity) or describe (quality) lower and upper limits. This is where a perspective focusing not on human action but on (social and natural) resources comes into the picture. It would be beyond the scope of this article to provide a comprehensive answer to the question which approach(es) would best serve this purpose. We limit ourselves to some exploratory thinking about the theoretical challenges lying ahead. And in this, we focus on natural resources and the natural environment.

Looking at consumption through a natural-environment lens draws attention to the natural basis of consumption and to how consumption affects the natural environment. Such a perspective focuses on the use of natural resources, on degradation, and on pollution that is caused by consumption. This discourse draws on categories such as natural elements
(e.g., rare earth elements), species, ecosystems, environmental impacts (e.g., global warming, biodiversity degradation, soil sealing, air and water pollution), emissions, and wastes. The aim of research in this field is to find accurate ways for how to estimate environmental pressures and impacts that are caused by consumption (e.g., Froemelt, Buffat, and Hellweg 2020) and to calculate and justify limits to this pressure by applying concepts such as carrying capacity (e.g., Lei and Zhou 2012; Nakajima and Ortega 2016) or planetary boundaries (e.g., Rockström et al. 2009). While human actions are the entity of interest for a human-action lens, for a natural-environment lens the entities of interest are built by the demand for material, the use of resources, and/or the release of emissions (e.g., Reisch et al. 2016; Spangenberg and Lorek 2002). Accordingly, patterns of consumption are, looked at from this perspective, patterns of environmental impact (see, for instance, the “environmental profiles” used in Froemelt, Dürrrenmatt, and Hellweg 2018). This leads to categories such as scale (e.g., household, building, municipality, nation, international) and spatiality (e.g., sub-city, city, region, nation), and in considering conditions that influence consumption, categories such as climate conditions and density of population come into view (e.g., Yongling 2011; Morikawa 2012).

The scholarly literature provides a number of approaches that claim to relate environmental phenomena to acts of consumption and/or human wellbeing. Looking at such approaches from the perspective of Protected Needs reveals the challenges that are lying ahead with a view to developing a coherent and convincing approach that can be used to determine corridors of consumption. In the following, we will point out what we perceive to be the most important challenges.

A rather basic challenge relates to approaches that proceed from single resources. Such approaches focus, from the point of view of a needs approach, on 2nd order means instead of 1st order means (satisfiers). Satisfiers, in turn, do not, as a rule, draw on single resources but on complex combinations of resources (such as settlements, landscapes, green public spaces, public transport). Determining corridors of consumption in terms of single resources would not only obscure the view on need satisfaction, it would also disregard diversity and justice. This can be exemplified by a societal debate about residential size. In January 2019, Swiss politicians in Berne (Griines Bündnis) submitted a postulate with the aim of introducing either a regulation or a special tax to reduce the size of living space per person. This prompted a debate about elderly people living in large apartments instead of moving to smaller alternatives. An elderly woman reacted with a comment in a newspaper where she argued that the debate disregarded the wellbeing of older people because they spend most of their time at home and for this reason their wellbeing depends on having enough space to move around. Suggestions of minimal residence size informed primarily by environmental aspects are, as a rule, not congruent with those informed primarily by considering what people do in their homes (for Switzerland the latter is regulated with a view to subsidies; for the debate see also Cohen 2020). The challenge is to build a bridge between resources, satisfiers, and needs that is theoretically and empirically sound. Promising starting points to build such bridges could be provided by approaches that focus on aggregated bundles of resources and infrastructures (such as energy services, e.g., Brand-Correa, Martin-Ortega, and Steinberger 2018).

Approaches that focus on services provided by ecosystems (e.g., Ringold et al. 2013; Sandifer, Sutton-Grier, and Ward 2015; Yang et al. 2015), landscapes (e.g., Arts et al. 2017; Westerink et al. 2017), and the like are promising because they comprise the notion of human wellbeing. But they have, as their point of departure, not human needs and their satisfaction, but ecosystems and the like (and their maintenance). That is, the order of purpose (needs) and means (satisfiers) is inverted and the challenge thus is to coherently link these different starting points.

A considerable part of the approaches that belong to the natural-environment lens are approaches that are used to estimate environmental impact. Such approaches are ecological footprint (e.g., Wackernagel and Beyers 2019), life cycle assessment (e.g., Hertwich 2005; Saner et al. 2013, 2014), and other concepts focusing on emissions, resource use, or environmental pressure (such as water footprint). These approaches are not salutogenic but proceed from actual (or anticipated or potential) environmental damage (hence, they could be suitable to determine upper limits of corridors of consumption but not to determine lower limits). Furthermore, they do not differentiate between needs (purposes) and satisfiers (means), and they often equate actual demands with needs (e.g., Ottelin et al. 2019). The epistemological interest informing them is not a (salutogenic) interest in human needs but an interest in environmental pressures, impacts, and so forth. The challenge thus is to conceptually bridge the diverging epistemological interests and to reconcile the contradictory frames.

Approaches that estimate the environmental impact of need satisfaction by linking needs directly to a number of selected economic goods (e.g., Vita
et al. 2019) do not provide workable ways to determine corridors of consumption. They cannot take into account the complexity and diversity of need satisfaction although complexity and diversity do make a difference not only with regard to quality of life but also with regard to environmental impact. For example, the ways in which a surfboard is produced, stored, or discarded might have low impact compared to how it is used, and the latter in turn depends on where the surfer lives, where he/she surfs, and how the surfboard and the surfer arrive at the destination, in which period of the year he/she surfs, and so forth. Accordingly, if such approaches would be used to determine corridors of consumption, the resulting corridors would be blind not only to complexity, but also to diversity, justice, and systems of provisioning (i.e., while using a car might be dispensable for some groups of people it might be indispensable for others). The challenge is to balance the aggregation of consumption that is necessary for calculating impact against the differentiation that must be maintained to acknowledge the diversity of human life and to consider social justice.

One type of approach that is not equally prominent in the debate focuses more on *negotiating and regulating the use of bundles made of resources* (both natural and social) and *infrastructures* (including systems of provisioning). Such approaches are, for instance, a need area approach (Bedürfnisfeld-Ansatz, e.g., Mogalle 2000; Beschorner et al. 2005), an approach proceeding from rights of use and institutional resource regimes (e.g., Gerber et al. 2009), or the universal basic services approach (e.g., Coote 2021; Coote and Percy 2020; Frönd and Williams 2018; Bohnenberger 2020). Such approaches are promising, because they incorporate both resources and satisfiers (in terms of consumer goods and acts of consumption). But they have three limitations with a view to using them in order to determine corridors of consumption. First, they are most probably limited in their scope (they can only be applied to a limited number of resource-infrastructure-bundles). Second, they do not proceed from needs (purposes) but from acts of consumption (satisfiers). Finally, the insecurity with regard to whether they allow consideration of the acts of humans that are not at least to some extent located near each other both in space and time (and can thus not enter a negotiation) is relevant. The challenge thus is to link the somewhat limited scale of such approaches to the broader perspective that is necessary in considering natural resources and the like.

In sum, approaches that belong to a natural-environment lens do not, as a rule, apply the notion of quality of life and they do not proceed from a comprehensive approach to consumption. This is in marked contrast to using Protected Needs as the point of reference to determine corridors of consumption. The latter requires that such corridors must comprehensibly and discernibly refer to needs, that is, it must be possible to justify each corridor by naming the satisfaction of which need(s) is (are) ensured by the corridor. Therefore, in order to justify and determine corridors of consumption, these two perspectives, a human-action lens and a natural-environment lens, must be integrated. This leads to the last challenge that we want to mention: A considerable number of suggestions about limits of consumption proceeds from a simplistic understanding of biophysical mechanisms that, for instance, negates that so-called environmental limits are not a property of nature but rather the result of choices (emphasized, e.g., by Kallis 2019). In addition, there is often a pronounced tendency when using the results of calculations to fail to consider the assumptions and simplifications made in modeling (how this affects the final result is emphasized, e.g., by Froemelt, Dürrrenmatt, and Hellweg 2018). At the same time, a considerable number of contributions in the discourse about sustainable consumption is informed by questioning any knowledge about the universality of needs on the premise that it is not possible to produce objective knowledge about need satisfaction. The epistemic challenge thus is to question both equally, knowledge about the vulnerability of the natural environment and knowledge about the universality of human needs and need satisfaction while not deconstructing such knowledge to an extent that is paralyzing and justifies inaction.

**Conclusion**

Policies leading to sustainable consumption must, in order to be well-designed, be grounded on a comprehensive understanding of consumption, on a coherent and salutogenic definition of sustainability, and on proper instruments to assess the environmental and social impacts of consumption. They must not impose specific lifestyles, they should not feed a narrative of renunciation, and they should account for diversity and justice. The concept of CC wants to provide a fundament for developing policies that meet these criteria.

In order to advance the concept of CC with a view to its implementation, it is necessary to have a convincing approach that provides both sound and societally accepted criteria that can be used to justify corridors of consumption and a sound procedure to identify what is in the corridors of consumption
and to calculate and to describe lower and upper limits of consumption. We have shown (both theoretically and empirically) that the theory of PN can be used as the point of reference in justifying the concept of CC and that it can provide the criteria for determining corridors of consumption. But while the theory of PN justifies limiting consumption, it does not lead to limits. With a view to the latter, it must be complemented by approaches that allow both to identify those satisfiers and/or resources that must be captured by the lower and upper limits of consumption and to calculate (quantity) or describe (quality) these limits. We have also shown that approaches that are informed primarily by a natural-environment lens do lead to limits but are not informed by a convincing salutogenic approach to quality of life. Hence, they do not provide lower limits of consumption and the upper limits they provide are not justified by threats to need satisfaction.

Therefore, a next step in advancing the concept of CC should be to develop an integrated approach for determining corridors of consumption that is not lopsidedly informed by a natural science approach or by a social science approach but is convincing from an interdisciplinary point of view. Such an approach is still missing. We tried to show what challenges should be addressed in order to develop such an integrated approach. In this respect, this article is both conceptual and exploratory by pointing out next conceptual steps that are necessary. Accordingly, its aim is to further the debate not to close it.

Notes

1. See also the special issue of the Journal of Cleaner Production (Akenji et al. 2016).
2. An in-depth presentation of the large body of approaches devoted to good life, quality of life, human wellbeing, capabilities, happiness and so forth is beyond the scope of this article, and the same applies to a comparison of the theory of PN with other approaches (see for this Di Giulio 2008; Di Giulio et al. 2010, 2012; Di Giulio and Defila 2020). Further contributions, especially on the latter subject, will be published in the future. The members of the interdisciplinary advisory board were Peter Bartelheimer, Mathias Binswanger, Birgit Blättel-Mink, Doris Fuchs, Konrad Götz, Gerd Michelsen, Martina Schäfer, Gerd Scholl, Michael Staufacher, Roland Stulz, and Stefan Zundel, the members of our advisory board. We have to thank M.I.S. Trend in Lausanne, and especially Christoph Müller, who supported the development of our questionnaire and implemented it. Furthermore, we thank Ruth Kaufmann-Hayoz and Lisa Lauper for an inspiring collaboration—without them we would not have achieved anything. Finally, we thank the reviewers and Maurie Cohen for their most valuable contributions to improving the article and Corinne Ruesch Schweizer for her support in data analysis.

3. The original, and thus authoritative, version of the Protected Needs, is the German version (dated October 15, 2016), authored by Rico Defila and Antonietta Di Giulio. The German version has been subjected to comprehensive cognitive testing in Switzerland. Based on the results of this testing, it has been revised and translated into French (by M.I.S. Trend). The German version has also been translated into English by the authors of this article. Valuable contributions and feedback have been provided by Manisha Anannharaman, Marlyne Sahakian, Czarina Saloma-Akpedonu, and Anders Hayden.

4. Why we use “what individuals must be allowed to want” (Table 1, left column). As explained elsewhere, “We choose this rather bulky phrase to emphasise that this list of needs does not entail that individuals must develop a corresponding construct of wanting but that they have to be allowed to do so; and if they do, they are entitled to satisfy it” (Di Giulio and Defila 2020, 108). We use “individual constructs of wanting” (Di Giulio et al. 2012) to emphasize both that needs are always subjectively experienced by individuals (see also Soper 2006) and that needs depend, in terms of how they are individually delineated and weighted, on social and cultural contexts and are thus also socially constructed.

5. Group 2: Respondents that have, for at least one of the Protected Needs, chosen either value 6 or 7 in answering Q7 (with a view to quality of life, satisfaction of need is 1 = not imperative, 7 = imperative, 2–6 not labelled) and have chosen a global perspective in answering Q8 (unjust for people living everywhere in the world if satisfaction is prevented) (= need is crucial for human wellbeing, universal, and incontestable). Group 3: Respondents that have given this answer for all nine needs. Group 1: Respondents that have given this answer for none of the nine needs. Missing: Respondents that have not answered Q7, Q8, or Q11 (or have chosen “I don’t know”) and respondents that have given an incorrect answer to Q8 (this was technically possible).

6. See https://www.admin.ch/opc/de/classified-compilation/19890081/201301010000/843.142.3.pdf.

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Disclosure statement

The authors declare no conflict of interest.
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Appendix A
The scale used to investigate openness to endorse the concept of consumption corridors in the Swiss study conducted in 2016 Protected Needs and consumption corridors

| Deliberative Space | Debilitating arguments | Supporting arguments |
|-------------------|------------------------|----------------------|
| Deliberative Space 1 | No one can tell what other persons need to live a satisfying life because people have utterly different needs and desires they want to satisfy in their life. | There are some universal human needs people have across time and cultures. |
| Deliberative Space 2 | The state is under no circumstances entitled to intervene in individual freedom and lifestyle. | The state has to ensure the negotiation of rules that protect natural and social resources and that secure every person has access to those resources he/she needs to satisfy his/her needs. |
| Deliberative Space 3 | It is the task of scientific experts to define lower and upper limits of endowment with resources. | Lower and upper limits of endowment with resources have to be societally negotiated. |
| Deliberative Space 4 | The idea of “consumption corridors” is utopian: People will never accept precepts limiting their consumption. | A lot of examples show that people are prepared to accept limits to their individual freedom when it serves the common good or protects other humans. |
| Deliberative Space 5 | It would be pointless to implement “consumption corridors” in a single country like Switzerland. | We have to start somewhere and new ideas quite often are established by being implemented first on a small scale, like in individual states or even communities. |
| Deliberative Space 6 | Technical progress will make it possible for everybody to satisfy their needs in the future without us having to limit ourselves. | If we do not question our lifestyle and limit consumption to a reasonable quantity, fewer humans than nowadays will be able to satisfy their needs in the future. |
| Deliberative Space 7 | Implementing “consumption corridors” would harm the Swiss economy. | Implementing “consumption corridors” would pose no problem to the Swiss economy because it could deal with them in an innovative way. |

In order to find out how the concept of consumption corridors is received in society, we used an adapted semantic differential scale (Question 11 of questionnaire). Respondents were presented with seven deliberative spaces in which they had to position themselves in their role as citizens. Each of these deliberative spaces is formed by juxtaposing contradicting (bipolar) arguments representing a debate, and each deliberative space represents a belief that is crucial to the concept of consumption corridors. Pair 1 (row 1) reflects the belief about human beings, pair 2 (row 2) the belief about the role of the government, pair 3 (row 3) the belief about the significance of societal deliberation, pair 4 (row 4) the belief about the individuals’ willingness to limit their freedom, pair 5 (row 5) the belief about the potential of corridors of consumption, pair 6 (row 6) the belief about the significance of limiting consumption, and pair 7 (row 7) the belief about the economic impacts of corridors of consumption. Respondents were asked to position themselves with regard to these pairs of arguments by ticking one of 7 boxes placed in between the arguments: box at the far left = agreeing much more with the left argument, box at the far right = agreeing much more with the right argument (whether the debilitating arguments were shown on the left or on the right was randomized, and the questionnaire did not indicate whether the single arguments were debilitating or supporting arguments), box in the middle = agreeing equally with both arguments OR dismissing both arguments equally, additionally, respondents were provided with the option “I don’t know.” For data analysis, the boxes were coded as follows: agreeing much more with debilitating argument = 1; agreeing much more with supporting argument = 7 (“I don’t know” and no answer were both coded as missing). Data analysis showed (see Defila and Di Giulio 2020) that these seven deliberative spaces reflect a common latent factor, the openness to endorse the concept of consumption corridors (the factor explains 37.7% of the variance; eigenvalue is 3.22; Cronbach’s alpha for the latent variable (consisting of seven items) is .80).
Appendix B
The sample of the Swiss study about Protected Needs and consumption corridors conducted in 2016

Table B1. Sample by age, gender, and linguistic region.

| Gender       | Female | Male | Total |
|--------------|--------|------|-------|
| German-speaking part |
| Age          |        |      |       |
| 18–30        | 70     | 72   | 142   |
| 31–40        | 62     | 63   | 125   |
| 41–50        | 65     | 69   | 134   |
| 51–60        | 64     | 65   | 129   |
| 61 and older | 108    | 91   | 199   |
| Subtotal     | 369    | 360  | 729   |
| French-speaking part |
| Age          |        |      |       |
| 18–30        | 34     | 35   | 69    |
| 31–40        | 29     | 29   | 58    |
| 41–50        | 32     | 32   | 64    |
| 51–60        | 28     | 28   | 56    |
| 61 and older | 46     | 37   | 83    |
| Subtotal     | 169    | 161  | 330   |
| Total        | 538    | 521  | 1059  |

Note. Composition of the sample resulting from applying the combined criteria of age (aged 18 and older), gender, and linguistic region (German-speaking part of Switzerland, French-speaking part of Switzerland) in quota sampling (crossed quota). Compared to the Swiss population, respondents from the French-speaking part of Switzerland were slightly overrepresented in the sample. This was considered in the data analysis by weighting the answers.

Table B2. Sample by size of household.

| Size of household (persons per household) | Sample (in %) | Swiss population (in %) |
|------------------------------------------|---------------|-------------------------|
| 1–2 persons                              | 66.6          | 67.8                    |
| 3–4 persons                              | 28.4          | 26.1                    |
| 5 persons and more                       | 5             | 6.1                     |
| Total                                    | 100           | 100                     |

Note. The household sizes represented in the sample in comparison to the Swiss population in 2015 (Source: Swiss Federal Statistical Office, November 24, 2016). At the time the survey was fielded, most respondents lived in households consisting of one or two persons, and the same applied to the Swiss population.

Table B3. Sample by political attitude.

| Political attitude (1 = far left; 11 = far right) | Sample (in %) | Swiss population (in %) |
|--------------------------------------------------|---------------|-------------------------|
| 1–4                                              | 17            | 15.4                    |
| 5–7                                              | 43.8          | 50.5                    |
| 8–11                                             | 28.9          | 19.7                    |
| Missing or no answer                             | 10.3          | 14.4                    |
| Total                                            | 100           | 100                     |

Note. The political attitudes represented in the sample in comparison to the Swiss population in 2015 (Source: http://forscenter.ch/wp-content/uploads/2013/11/SILC-2010-COMPASS-Codebook-D.pdf). To capture political attitudes (Question 12), we asked “Sometimes one talks about political left or right. Where would you personally classify yourself if 0 means far left and 10 means far right?” with the additional option “I don’t know.” This question was used in the Swiss questionnaire of the European Union Statistics on Income and Living Conditions in 2015 (EU-SILC CH). For data analysis, 0 was coded as 1 and 10 was coded as 11 (N = 950, “I don’t know” was coded as missing; minimum = 1, maximum = 11; M = 6.41, SD = 2.19). Although the general picture with regard to the political attitude of the respondents in the sample reflects the general picture in Switzerland, it is remarkable that the percentage of individuals with a right-wing attitude in the sample is slightly higher than in the Swiss population since the survey’s topic would have led one to expect the contrary.

Table B4. Sample by education.

| Education (highest level achieved) | Sample (in %) | Swiss population (in %) |
|-----------------------------------|---------------|-------------------------|
| Compulsory school                 | 3.2           | 24.5                    |
| Secondary school II, vocational training | 45.9      | 34.6                    |
| Secondary school II, general education  | 15.2  | 11.6                    |
| Higher vocational training        | 21.9          | 12.5                    |
| Higher education (e.g., university)| 13.7          | 16.9                    |
| Total                             | 100           | 100                     |

Note. The educational levels represented in the sample in comparison to the Swiss population in 2015 (Source: Swiss Federal Statistical Office, January 31, 2017). A strict comparison of the numbers is not possible since the percentages provided by the Swiss Federal Statistical Office include the population from the age of 15 while the sample does not cover the age span 15–17 (compulsory school ends at the age of 16, and vocational training is not yet completed at the age of 17, so compulsory school was the highest level of education already achieved by respondents who were in vocational training at the time).
In order to capture the potentially different effects of political attitude and personality, we asked respondents questions capturing altruism (Question 13) by using five positively keyed items chosen from the “International Personality Item Pool” IPiP (http://ipip.ori.org) and the German “Typentest” by Lars Lorber (http://www.typentest.de). These five items were: (1) I perceive/anticipate the needs of others; (2) My own advantage is not so important to me; (3) The wellbeing of others is important to me; (4) I help others even when this causes disadvantages for me; (5) I like to be generous without expecting anything in return. The respondents were asked about their level of agreement with each of these items on a 7-point scale (not labeled) with “I don’t know” as an additional option. The altruism scale we used in data analysis was the mean across all five items (N = 1051, “I don’t know” was coded as missing; minimum = 1.00, maximum = 7.00; M = 5.00, SD = 1.08; Cronbach’s Alpha = .84).

### Table B5. Sample by income.

| Income (net income of household per month) | N   | %  |
|-------------------------------------------|-----|----|
| <3000 CHF                                 | 133 | 12.5 |
| 3001–5000 CHF                             | 193 | 18.3 |
| 5001–7000 CHF                             | 201 | 19.0 |
| 7001–11,000 CHF                           | 240 | 22.6 |
| =/> 11,001 CHF                            | 106 | 10.0 |
| I don’t know or no answer                 | 187 | 17.6 |
| Total                                     | 1059| 100 |

Note. The income distribution in the sample (the scale is taken from the Swiss Vox Analysis). For comparison with the Swiss population: The median gross salary for a full-time position in 2016 was CHF 6502 per month; the 10% of employees with the lowest wages earned less than CHF 4313 per month; the 10% with the highest salaries earned more than CHF 11,406 per month (Source: Swiss Federal Statistical Office, May 14, 2018).