# From 'Full Life' to 'Balanced Life':
# Extending Martin Seligman's Route to Happiness

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**Abstract**

In this paper, a formalization of Martin Seligman's concept of *full life* is presented by employing basic microeconomics. With the formalized version of the concept, it can be explained why people differ with respect to the levels of pleasant, engaged and meaningful life they are trying to realize. Moreover, it is suggested to extend Seligman's concept of *full life* to the concept of *balanced life*. This extension requires that in addition to differences in people's preferences regarding aspects of life also differences in the time opportunity costs are to be taken into account. Finally, a scorecard-approach is proposed to track personal advancement in the process of life balancing.

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# 1 Introduction

The conceptualization of happiness is a difficult endeavor. Recently, a large number of empirical studies provide a basis for the analysis of subjective well-being via questionnaires. Beside these positive studies focusing on self-reported happiness, however, there are also normative studies as to what one should expect to make people really happy. The question on the determinants of happiness is probably one of the oldest questions of mankind, as can be seen from the answers that are provided e.g. by religion and philosophy. Nowadays, there are also answers from psychology, namely positive psychology.

In this paper, we take a closer look at one of the answers given by this discipline of psychology, Martin Seligman's concept of *full life*. In our view, his approach is a very instructive example of a normative concept of "objective" happiness in the sense that Seligman prescribes the route to happiness. Although Seligman uses an amazing amount of the world's written cultural heritage to construct his concept, the result is nonetheless of a normative nature insofar as it says how "objective" happiness may be attained. As a consequence, Seligman's concept may be seen as closer related to Aristotle's good life than to today's hedonists' happiness.

In its present form, Seligman's concept is not formalized. In this paper, a formalization and quantification is attempted using basic microeconomic analysis. The objective of this procedure is to clarify the implications of the concept by taking into account that people face constraints when trying to make their lives more comfortable. The most fundamental constraint is the *time* that is available. Therefore, we introduce a time constraint for people pursuing their goals in life. We show the consequences this implies for the concept of Seligman.

Our approach is an economic and a quantitative one. It is economic as it focuses on decisions about the allocation of resources. It is quantitative as the amount of time spent on the different "routes" to happiness is measured. As we will show in the second section,

the attempt to quantify ethical reasoning is not completely new. In addition to that, more recent research on happiness in the social sciences is to a large extent quantitative and based on survey data. This encourages us to formalize and quantify Seligman's concept. However, formalization and quantification must lead to insights that might not be gained without them. Hence, new insights will be the criterion upon which the usefulness of the approach adopted here is to be judged. In the third section, Seligman's concept of *full life* is introduced and characterized. Its formalization and quantification is carried out and analyzed in the fourth section. The fifth section contains a scorecard concept to empower people to track their personal route to happiness. The scorecard is interpreted as a transformation of Seligman's *full life* into the measurable *balanced life* concept. The sixth section concludes.

## 2 Formalization in ethical and happiness research

Perhaps the first formalization of an ethical concept can be found in Hutcheson (1725). The attempt "to compute the Morality of any Actions, with all their Circumstances" (Hutcheson, 1725) led him to the formula (Hutcheson, 1725, first variant):

$$M = (B+S) \times A = BA + SA \tag{1}$$

$$BA = M - SA = M - I \tag{2}$$

$$B = \frac{M-I}{A} \tag{3}$$

with the following notation: M = moment of (public) good, B = virtue of the agent or benevolence, S = self-love, A = abilities, I = moment of private good or interest. Hence, the last equation says that the virtue of an agent may be calculated as the public good he or she provides minus the private good he or she produces for himself or herself, and this difference divided by the abilities of the respective person.

Of course, it is very easy to criticize this formula as well as the whole idea and approach

(see e.g. Bredvold, 1951); but nevertheless the approach was insofar successful as it triggered over the centuries new methods to discuss normative as well as analytical questions. With respect to happiness, the formal approach was taken up by F.Y. Edgeworth (1879) as *hedonical calculus* or *utilitarian calculus* (Edgeworth, 1881). In his famous definition it reads as follows: "*Greatest possible happiness* is the greatest possible integral of the differential 'Number of enjoyers $\times$ duration of enjoyment $\times$ degree thereof "(Edgeworth, 1881) which is formalized as the maximal value of

$$\int\int\int dp\, dn\, dt \tag{4}$$

"(where *dp* corresponds to a just perceivable increment of pleasure, *dn* to a sentient individual, *dt* to an instant of time)" (Edgeworth, 1881).

About 100 years later, new attempts to formalizations and quantifications of happiness are undertaken. According to Lykken (2000) happiness consists of an individual happiness baseline which is determined by genetic and (temporarily) by physiological constitution. Deviations from this baseline are created by recent events and the individual's activities to influence its happiness. Norrish, Vella-Brodrick (2008) deduced from these considerations the formula

$$H = S + C + V.$$

Happiness (H) is the sum of three factors: the individual's happiness set point or baseline (S), the individual's circumstances (C) and voluntary factors controlled by the individual (V) (Cf. Fig. ??). This formula has been studied empirically by Lyubomirsky, Sheldon and Schkade (2005) to explicate the determinants of happiness and to quantify them. They showed that the happiness set point (S) contributes 50% to the explanation of individual happiness whereas only 10% are contributed by life circumstances (C) and as much as 40% by intentional activities (V) (Lyubomirsky/Sheldon/Schkade, 2005).

Moreover, Kahneman et al. (2004a) proposed the following measure for national well-being

(WB, WB'):

$$\begin{aligned} WB &= \sum_i \sum_j h_{ij}\mu_{ij}/N \\ WB' &= \sum_j H_j \overline{u}_j \end{aligned} \tag{5}$$

with $h_{ij}$ as the amount of time individual $i$ is engaged in activity $j$; $\mu_{ij}$ is the net affective experience during activity $j$ and $N$ the size of the population (Kahneman et al., 2004a). Measuring $h_{ij}$ by its average value $H_j$ and $\mu_{ij}$ by its average value $\overline{u}_j$, assuming that there exists no correlation across people between the time spent on an activity and its net affect, leads to the equation for WB' above. The net affect of activities might be taken from the Day Reconstruction Method (DRM) of Kahneman et al. (2004b) and could be combined with time use data from Time Use Surveys (Kahneman et al., 2004a). Hence, well-being even on a national level might become measurable.

As it seems, there is at least some agreement among researchers on happiness issues that it is reasonable to formalize and to quantify concepts and aspects of happiness (Kahneman/Krueger, 2006). But nevertheless there are limits to such an approach. Perhaps the most important limitation is the measurability of both, happiness and its determinants. Happiness as well as its determinants are rather fuzzy and vague concepts which may mean different things to different people (Schwarz/Strack, 1999). If this is true, it becomes very difficult to compare or even to aggregate levels of happiness. Neither formalization nor quantification can solve this problem. This implies that quantitative results need a careful interpretation. However, in our opinion it does not mean that formalization and quantification are futile.

## 3 Seligman's routes to happiness

In the scientific happiness literature, different concepts co-exist. One prominent position from positive psychology is credited to Martin Seligman. In the following, this so-called "Seligman approach" (Vittersø/Oelmann/Wang, forthcoming) is presented. In this approach, happiness is defined as a multidimensional goal that can be attained via three different routes (Seligman, 2002; Seligman/Rashid/Parks, 2006) that might be dubbed "Seligman's trinity": pleasant life, engaged life and meaningful life (see also Figure ??). These routes correspond to the three ethical theories of self-interest told apart by Parfit (1984). The first one is based on hedonistic theories of happiness, the second is an offspring of desire theory and the third may be connected to objective list theories (Seligman/Royzman, 2003).[1]

- Insert Figure 1 about here -

The first route to happiness is the pleasant life, "a life that successfully pursues the positive emotions about the present, past and future" (Seligman, 2002; Seligman, 2003). This concept is backed by the hedonistic idea of a life full of bodily and higher pleasures. Bodily pleasures are those momentary positive emotions that are induced by sensual perceptions. The so-called higher pleasures are pleasures that can be reached in more complicated and more cultivated ways (Seligman, 2002; Seligman, 2003). The pleasant life, thus, refers to the philosophical theory of hedonism, the concentration on the pursuit of pleasures. Exemplified is this hedonism by the utilitarian theory of Jeremy Bentham who defines happiness as the sum of pleasures over time, the amount of which is to be maximized.[2]

The second route to happiness is an engaged life (Seligman/Rashid/Parks, 2006).[3] An en-

[1] It is noteworthy that the economist John C. Harsanyi had a somewhat similar concept of the ingredients of individual utility functions; see Harsanyi (1986, 1995, 1997). For the relationship between utility, informed preferences and happiness in Harsanyi's concept see Ng (1999).

[2] See above for Edgeworth's formalization of this idea. For a more comprehensive overview of the history of utility theory see Read (2007) and the literature quoted there. While Ho (2006) puts emphasis on the differences between utility and happiness, Kimball and Willis (2006) suggest a way for reconciliation of these concepts.

[3] In some of his works Seligman uses the expression "good life" for this route, e. g. Seligman (2002) and Seligman (2004).

gaged life consists of "using your strengths and virtues to obtain abundant gratification in the main realms of life" (Seligman, 2003). This can be achieved by a person by developing her strengths and virtues. Seligman and his colleagues differentiate these characteristics in their VIA (Values in Action) classification into 24 character strengths (Peterson/Seligman, 2004; Park/Peterson/Seligman, 2004; Peterson/Park/Seligman, 2005a). Albeit other authors use different classifications they seem to agree on a certain canon of core virtues. In the philosophical tradition, this corresponds to a (neo-)Aristotelian approach in which a happy life means a virtuous life.[4] This road to happiness also corresponds to the concept of *flow* developed by Mihaly Csikszentmihalyi (2002).[5] Flow is "the state in which people are so involved in an activity that nothing else seems to matter" (Csikszentmihalyi, 2002). To achieve a high degree of engagement, according to Seligman and colleagues it is promising to identify the individual's central strengths, his "signature strengths" (Seligman, 2002; Peterson/Seligman, 2004).

A meaningful life is the third route to happiness (Seligman/Parks/Steen, 2005). A life is called meaningful if its aim is based on a higher purpose than the person itself. Such ends consist of a variety of "positive institutions" (Seligman/Rashid/Parks, 2006) as for instance religion, politics, family, community or nation (Seligman/Rashid/Parks, 2006). Seligman relates the concept of the meaningful life to the ethical "objective list" theories. These theories presume that there are certain universal objectives to be desired by all human beings (if they only knew what is best for themselves), may these universal values spring from anthropological necessities or from religious revelations.

Seligman (2002) states that to follow simultaneously all three routes to happiness is the best way to achieve the ultimate goal of "authentic happiness", i.e. a *full life*. According to Seligman this full life "consists in experiencing positive emotions about the past and future, savoring positive feelings from the pleasures, deriving abundant gratifications from your signature strengths, and using these strengths in the service of something larger to

[4] Cf. e. g. the perfectionistic approach of Thomas Hurka or Martha Nussbaum's capabilities approach. See also Kraut, 2008; McMahon, 2004.

[5] Describing happiness as a feeling of flow is much older and goes back at least to the Greek philosopher Epiktet. See Hudson, 1996.

obtain meaning." (Seligman, 2002.) In this way the whole is more than the sum of its parts. In contrast to that, an *empty life* - a life low on all three dimensions - is even poorer than the sum of those three levels reached would indicate (Peterson/Park/Seligman, 2005b).

Seligman (2002) qualifies his concept of *full life* by adding that the different routes are not of equal importance for the actualization of a full life: Following the route of a pleasant life is judged significantly less important than that of a engaged or a meaningful life (Seligman, 2002; Peterson/Park/Seligman, 2005b). To sum up, there are three routes to happiness that have to be taken simultaneously to achieve a full life; however, an engaged and meaningful life is considered more important than a pleasant one.

# 4 Formalization and modification of the *full life* concept

## 4.1 Analytics of 'full life'

In this section, Seligman's concept of *full life* is put into a formal model and modified by doing so.

In the language of economics, the subjective evaluation of activities is called *utility*. Denote the amount of pleasure in life by $p$, the amount of engaged life activities with $e$ and the amount of meaningful life activities with $m$, the general utility of these activities may be written as $U(p, e, m)$. This formalization is, however, too unspecific to be useful. Following Seligman, a full life requires that all three routes to happiness have to be taken to a certain extent. Hence, a full life requires that all activities $p, e$ and $m$ are essential, i.e. $U(0, e, m) = U(p, 0, m) = U(p, e, 0) = 0$. This implies that the lack of a whole category of activities nullifies happiness. However, even this assumption is not fully sufficient since it implies that a very small amount of activities in one category might be sufficient. To avoid this implication, define by $\overline{p}, \overline{e}, \overline{m}$ the minimally required amount of activities for a decent life in the respective

category. We call these minimal quantities of activities *basic needs*.[6] For $p < \overline{p}$ or $e < \overline{e}$ or $m < \overline{m}$, i.e. if the basic needs are not met, utility or happiness $U$ is rendered null.

Furthermore, it is assumed that the categories of activities may differ in their relevance for happiness or full life. Let therefore $\alpha, \beta, \gamma \in (0, 1)$ be the weights of (in this order) $p, e, m$ in the utility function with $\alpha + \beta + \gamma = 1$. These weights represent attitudes and may represent aspects of an individual's personality. Furthermore, it seems not unrealistic that these weights of preferences are more or less influenced by the predominant life-styles of the respective peer groups in a society.

According to these assumptions, the utility function might be specified as follows:

$$U(p, e, m) := (p - \overline{p})^{\alpha}(e - \overline{e})^{\beta}(m - \overline{m})^{\gamma}. \tag{6}$$

Note that this is a Stone-Geary utility function (Samuelson, 1947/48; Geary, 1949/50; Stone, 1954). In the case of $\overline{p} = \overline{e} = \overline{m} = 0$, a Cobb-Douglas utility function would result. A Stone-Geary kind of utility function suffices to represent Seligman's *full life* concept in a formalized way.

Note further that in the original concept of Seligman it is required that all three arguments are incorporated in the utility function. However, the formal approach taken in this paper allows in general that one (or even two) of the weights $(\alpha, \beta, \gamma)$ might be equal to zero. This would not result in a utility of zero because $U(p, e, m) := (p - \overline{p})^{\alpha}(e - \overline{e})^{\beta}(m - \overline{m})^{0} = U(p, e) = (p - \overline{p})^{\alpha}(e - \overline{e})^{\beta}$ with $\alpha + \beta = 1$. In contrast to that, it does not make sense to define minimum requirements for activities whose weight in the utility function is zero. Hence, in accordance with Seligman, we assume that all weights are larger than zero.

For $\alpha, \beta, \gamma \in (0, 1)$, the marginal utilities of $p, e, m$ are defined by:

$$\frac{\partial U(p, e, m)}{\partial p} = \frac{\alpha}{p - \overline{p}} U(p, e, m) > 0, \tag{7}$$

[6] An alternative interpretation could be that these minimal quantities are life goals (in the sense of Headey, 2008). However, independent of their labels these quantities may play the role of set-points for individual well-being.

$$\frac{\partial U(p,e,m)}{\partial e} = \frac{\beta}{e-\overline{e}}U(p,e,m) > 0, \tag{8}$$

$$\frac{\partial U(p,e,m)}{\partial m} = \frac{\gamma}{m-\overline{m}}U(p,e,m) > 0. \tag{9}$$

When choosing among alternatives, several restrictions are to be taken into account. The most important restriction is *time*. All activities require a certain amount of time that is not available for other activities. I.e. all activities have positive opportunity costs. Insofar the time constraint is the most general restriction in human life. Consider e.g. pleasurable goods that cost some money. To earn this money, a certain amount of time must be used in the labor market. Hence, all monetary costs are in this sense opportunity costs of time. Let the time cost of pleasurable activities be $t_p$, of engaged life activities $t_e$ and of meaningful life activities $t_m$. The total amount of time available be $T$. Then the time constraint of an individual can be written as:

$$T \geq t_p p + t_e e + t_m m. \tag{10}$$

For $T > t_p p + t_e e + t_m m$, the time constraint is not binding, i.e. there is time left that can be used freely. However, in the following we restrict ourselves to binding time constraints.[7]

Up to this point, the formalization was carried out as a formal representation of Seligman's concept. However, the model may also be connected with Hutcheson (1725) and Lykken (1999): the *abilities* of a person may be represented by individual time costs for $p, e, m$ whereas genetic factors may have an impact on the minimum values of $p, e, m$ as well as on the weights $\alpha, \beta, \gamma$ of the utility function. For instance, a person with a talent for pleasurable activities will have low time costs per unit of this activity compared to an untalented person. A similar argument holds for all activities in the utility function.

Assume now that a person tries to realize full life, given the time constraint and the time costs of the respective activities. Formally, this means that the utility function is to be

[7] A binding time constraint is often felt as time stress. For an international empirical analysis of time stress see Hamermesh and Lee (2003).

maximized for $p, e, m$ with respect to the time constraint:

$$\max_{p,e,m} U(p,e,m) = (p-\overline{p})^{\alpha}(e-\overline{e})^{\beta}(m-\overline{m})^{\gamma} \text{ w.r.t. } T = t_p p + t_e e + t_m m. \tag{11}$$

Let $\lambda$ be the Lagrange coefficient of the time constraint. The first-order conditions for an interior utility maximum are:

$$\begin{aligned} \frac{\alpha}{p-\overline{p}} U(p,e,m) - \lambda t_p &= 0, & (12)\\ \frac{\beta}{e-\overline{e}} U(p,e,m) - \lambda t_e &= 0, & (13)\\ \frac{\gamma}{m-\overline{m}} U(p,e,m) - \lambda t_m &= 0. & (14) \end{aligned}$$

Solving this system of equations yields the following condition for an interior solution of the maximization program:

$$\frac{\alpha}{t_p(p-\overline{p})} = \frac{\beta}{t_e(e-\overline{e})} = \frac{\gamma}{t_m(m-\overline{m})}. \tag{15}$$

The condition requires that the marginal utilities of activities, divided by their respective time opportunity costs, are to be equalized. Note, however, that a precondition for an interior solution of the mathematical program is that the minimal activities $\overline{p}, \overline{e}, \overline{m}$ are already carried out. Given that they are, it is worth to bear in mind that the preference parameters $\alpha, \beta, \gamma$ in connection with the time opportunity costs $t_p, t_e, t_m$ determine the optimal quantities of activities. This implies that not all persons will choose the same quantities of activities in the respective categories when trying to realize a *full life*. Observing that different persons spend different amounts of time with the respective activities does not necessarily imply that they have different preferences or that they are misguided in their behavior. Therefore, it seems more precise to say that people will try to *balance* their lives with respect to their preferences as well as with respect to their abilities and their time

restrictions.

To complete the formal analysis, note that the demand functions for the respective activities $p, e, m$ are given by:

$$p = (1-\alpha)\overline{p} + \frac{\alpha}{t_p}[T - (t_e\overline{e} + t_m\overline{m})], \tag{16}$$

$$e = (1-\beta)\overline{e} + \frac{\beta}{t_e}[T - (t_p\overline{p} + t_m\overline{m})], \tag{17}$$

$$m = (1-\gamma)\overline{m} + \frac{\gamma}{t_m}[T - (t_p\overline{p} + t_e\overline{e})]. \tag{18}$$

The demand functions show that the demand of a particular activity is guided by the preference strengths $(\alpha, \beta, \gamma)$ and the respective time opportunity cost, multiplied by the time left over after the minimally necessary activities are provided (time surplus).

The demand functions can be used to quantify the *time elasticities* of the respective activity categories. By doing this the time opportunity costs of the respective activity are interpreted as 'prices' for that activity. The own-'price' and cross-'price' elasticities of the demand for pleasant life are quantified reactions of the allocation of time with respect to changes of the time-opportunity costs of the activity in question. These elasticities are especially relevant for measuring empirically the intensity of preferences for the respective activities. For Stone-Geary utility functions the own-'price' and cross-'price' elasticities of the demand for goods and activities of a pleasant life are given by:

$$\epsilon_{p,t_p} := \frac{\partial p}{\partial t_p}\frac{t_p}{p} = -\frac{\alpha}{pt_p}[T - (t_e\overline{e} + t_m\overline{m})], \tag{19}$$

$$\epsilon_{p,t_e} := \frac{\partial p}{\partial t_e}\frac{t_e}{p} = -\frac{\alpha}{pt_p}t_e\overline{e}, \tag{20}$$

$$\epsilon_{p,t_m} := \frac{\partial p}{\partial t_m}\frac{t_m}{p} = -\frac{\alpha}{pt_p}t_m\overline{m}. \tag{21}$$

The own-'price' and cross-'price' elasticities of the demand for engaged life activities are given by:

$$\epsilon_{e,t_e} := \frac{\partial e}{\partial t_e}\frac{t_e}{e} = -\frac{\beta}{et_e}[T - (t_p\overline{p} + t_m\overline{m})], \tag{22}$$

$$\epsilon_{e,t_p} := \frac{\partial e}{\partial t_p}\frac{t_p}{e} = -\frac{\beta}{et_e}t_p\overline{p}, \tag{23}$$

$$\epsilon_{e,t_m} := \frac{\partial e}{\partial t_m}\frac{t_m}{e} = -\frac{\beta}{et_e}t_m\overline{m}. \tag{24}$$

The own-'price' and cross-'price' elasticities of the demand for meaningful life activities are given by:

$$\epsilon_{m,t_m} := \frac{\partial m}{\partial t_m}\frac{t_m}{m} = -\frac{\gamma}{mt_m}[T - (t_p\overline{p} + t_e\overline{e})], \tag{25}$$

$$\epsilon_{m,t_p} := \frac{\partial m}{\partial t_p}\frac{t_p}{m} = -\frac{\gamma}{mt_m}t_p\overline{p}, \tag{26}$$

$$\epsilon_{m,t_e} := \frac{\partial m}{\partial t_e}\frac{t_e}{m} = -\frac{\gamma}{mt_m}t_e\overline{e}. \tag{27}$$

Note that all own-'price' elasticities as well as all cross-'price' elasticities are smaller than zero. This means that the activities are complements for each other given that the basic needs in each category are already met. Furthermore, the demand of the respective activity declines if the time opportunity costs of this activity or the minimally required amounts of the other activities increase. In addition to that, an increase in the opportunity costs of the other activities also reduces the amount of the activity in question. Resulting from the necessary minimum requirements on all three routes to happiness this shows that an engaged or meaningful life cannot be substituted by a pleasant life.

Finally, a short remark on the static nature of the model is necessary. According to East-

erlin (2006) and Thomas/Stock (1988) the determinants of individual happiness over the life cycle might change. In the model presented here, the dynamics could be incorporated by introducing time-dependent preference parameters $\alpha(\tau), \beta(\tau), \gamma(\tau)$ whereby $\tau \in [0, \Theta]$ is the time of life from birth ($\tau = 0$) to death ($\tau = \Theta$). In addition to that, the opportunity costs of time may also depend on the life cycle, i.e. $t_p(\tau), t_g(\tau), t_m(\tau)$. If people are not perfectly rational, it is reasonable to assume that they try to maximize their level of happiness independently for each $\tau \in [0, \Theta]$, i.e. for each period of life. Hence, the conditions derived in this paper do not change; the only difference would be that one had to add time subscripts to the optimal values, i.e. $p^*_\tau, g^*_\tau, m^*_\tau$, whereby an asterisk means the optimal value of the choice variable. Rethinking the allocation of time and effort from time to time would lead to discrete adjustments of the optimal values to preference changes and changes of the opportunity costs.

### 4.2 Balancing life

As already said at the beginning of the section, Seligman's approach is not only formalized in this paper but also modified. To see this, the results of the formal analysis will be interpreted in the following.

The most important result of the formal analysis is that not only the personal preferences for a pleasurable, engaged and meaningful life are decisive but also the individual opportunity costs of time. Observable differences in the behavior of people are not only based on different (or even 'false') preferences, but also on different time costs. For a personal optimum, the marginal increases of satisfaction due to the respective activity divided by its time costs are equalized. For this reason we say that balancing one's life should be the ultimate objective in Seligman's concept.

Balancing life is difficult if the time costs for providing the material necessities of life are very high (as it is in less developed countries). As long as a certain level of economic

development is not yet attained, it might be impossible for a large part of the population to aim higher at engaging and meaningful life activities which require surplus time. The latter may be interpreted with respect to the influence of economic development on the pursuit of happiness: Economic progress gives people more free time in the sense that the material basis of life is quicker established and, hence, more time is left over for other activities than earning a living. Consequently, people gain more time for a happy life.

Furthermore, balancing a life is not feasible in absolute deprivation. The approach taken here enables us to define three kinds of *absolute deprivation* (see Duclos/Grégoire, 2002, for a general definition) in a society: A person is deprived if she or he is unable to meet the basic needs concerning (1) hedonistic life goals, (2) concerning activities aimed at an engaged and (3) a meaningful life. As a consequence, her or his full life index would be equal to zero. Furthermore, in this case the first-order conditions for the optimal allocation of time are not valid and the demand functions presented above do not hold, too. It seems noteworthy that the full life concept of absolute deprivation is broader than concepts that are based solely on income or consumption. According to the former concept, a person might be absolutely deprived if she or he is unable to meet her or his basic needs concerning engaging and meaningful life activities by being at the same time rich with respect to income or consumption. In affluent societies, this could be the prevalent form of absolute deprivation since the material basis for a full life is by and large granted by the welfare state. However, the welfare state does neither have the ability nor the instruments to provide the bare necessities for an engaged and meaningful life.

Moreover, a person is *relatively deprived* (see Duclos/Grégoire, 2002, for a general definition) if her or his level of well-being (as measured by $U(p, e, m)$) is lower than that of the 'significant others' in her or his peer-group. A person might experience relative deprivation even if she or he has the same income and social status as her or his significant others because of lacking an engaged and meaningful life. Again, the full life concept seems broader than other approaches.

A further aspect of balancing life is the phenomenon of time stress in rich societies. It is generally acknowledged that there exists a positive relationship between leisure and quality of life; see e.g. Lloyd and Auld (2002), Iwasaki (2007) as well as Rodríguez, Látková and Sun (2008). Using a survey method to characterize the affects of daily life experiences, it was shown that the least positive affects were generated by housework, work and commuting (Kahneman et al., 2004a). The crucial question is, then, why do people work so much in rich societies. According to the optimality results derived above it was to be expected that working time will decline as a society grows richer. This tendency is actually observable (Greenwood/Vandenbroucke, 2005); however, there is also empirical evidence that especially richer people suffer from time stress (Hamermesh/Lee, 2003). These empirical results in connection with the optimality conditions above may be interpreted as if people fail to behave in their own best interest. Put differently, not all persons seem to be able to balance their lives. The psychic and social mechanisms behind this phenomenon are not entirely clear, but at the core of it seems to be a kind of harmful status competition via conspicuous consumption (Veblen, 1899; Rauscher, 1997; Layard, 2006). In the final analysis, externalities of a dysfunctional social norm might be diagnosed as the main culprit for this fallacy on the route to happiness. For the formal analysis above this would mean that the preference parameters $\alpha, \beta, \gamma$ are not the preferences a person would choose for herself, but rather represent social norms. It is presumably the pleasant life that is overvalued in today's society (that is e.g. called 'Spaßgesellschaft' in German).

## 5 The *Balanced Happiness Scorecard* (BHSC)

In this section, a scorecard approach is taken to make balancing of life measurable. It is intended to adapt the concept of the *balanced scorecard* (BSC) to the concept of a *Balanced Happiness scorecard* (BHSC).[8] The original concept of BSC attempts to measure the

[8] There are, of course, other approaches to use the Balanced Scorecard concept as a tool for happiness management; see, e. g., Schreiner (2005) or Rampersad (2006). These approaches differ substantially from our's. While Schreiner focuses on the happiness of a community we look at happiness on the level of an individual. With respect to Rampersad, our main intention is not to give practical advice but to exemplify the possibility of making Seligman's concept measurable.

performance of a firm with respect to its objectives that are based on the firm's vision and strategy (Kaplan and Norton, 1992, 1993, 1996). Of course, the original BSC seems not well suited for an immediate application to happiness. However, as the theoretical analysis in the preceding section shows it is not unrealistic to suppose that persons have ideas about their levels of basic needs according to the categories of pleasant, engaged and meaningful lives as well as about their goal levels with respect to those categories of happiness they are striving for.

The technique of the BHSC suggested here is intended to enable people to make the pursuit of happiness more conscious and to enable them to track their success in doing so. To this end, it is proposed to encourage people to set for themselves goals for their basic needs as well as for the level of performance they want for the particular happiness categories of a pleasant, engaged and meaningful life.

The first practical step is to set up an individual list of activities, classified as belonging to a pleasant, an engaged and a meaningful life. At the second step, the minimum level for each of these categories has to be specified. Having done this, the scorecard can be used to measure regularly (say, each week or month) the level realized in comparison to the level strived for. Checking for the difference between the levels realized and the levels attempted empowers people to reallocate their available time in order to reach a higher level of happiness.

- Insert Figure 2 about here -

The concept may be clarified by Fig. ??. In this figure, the three axes represent quantitatively the levels of activities according to Seligman's *full life* concept. The bottom line defines the basic needs with respect to a pleasant, engaged and meaningful life. The next line connects the levels in each happiness category that is strived for. It defines the goals of a person, given her or his preferences and time resources as well as opportunity costs of time. In addition to these two lines, a third line is drawn that represents the realized levels of the person. Comparing the attempted levels with the realized ones is an indicator for

the performance of a person with respect to the own happiness goals. In addition to that, the differences between the strived for levels and the realized levels are an indicator for the reallocation of time resources. In Fig. ??, the realized level of pleasantness is too high in comparison to the attempted levels of a pleasant, engaged and meaningful life. A reallocation of time resources from activities of a pleasant life to an engaged and meaningful life seems to be called for.

## 6 Conclusions

The intention of this paper was to analyze economically Seligman's concept of *full life*. Rational choice theory is employed to formalize the concept by letting persons maximize a utility function with respect to the opportunity costs of time for activities that belong to three happiness categories. The utility function was specified in such a way that it incorporates basic needs as well as preference parameters for the three areas of happiness pointed out by Seligman. The chosen specification is a well-known Stone-Geary type of utility function.

Using this framework from microeconomics, it is shown that people have first of all to meet their basic needs whatever their time constraints may be. This explains quite easily why economic development is not only wealth increasing, but also welfare and happiness enhancing: Becoming richer means becoming more productive, and this implies that less time is necessary to meet basic needs. Thus more time can be used for happiness and welfare upgrading activities.

A further implication of Seligman's theory is that more material wealth does not necessarily lead to more happiness. While more wealth may be easily transformed in a more pleasant life (via higher spending an consumer goods), it is not so easy to use it for a more engaged and more meaningful life. The economic interpretation of Seligman's concept shows that the time opportunity costs are crucial in this respect. The more time is used for earning

money to buy additional goods the less time is available for the activities of an engaged and meaningful life. The result of Hamermesh and Lee (2003) - people with higher incomes perceive more time stress for the same amount of working time than people with lower incomes - may be interpreted along these lines. For those people it would be better to use less time for work (and earning less) and to reallocate their time to activities that are directly related to an engaged and meaningful life.

In addition to the formalization and analysis of Seligman's concept, a new tool for measuring individual performance with respect to happiness is presented in form of the *Balanced Happiness Scorecard*. It is assumed that people are able to quantify relatively their levels of utility from activities and that they know to a certain extent their preferences for activities. People should then be able to quantify the level of their basic needs as well as the levels of a pleasant, engaged and meaningful life they are striving for. These target goals can be compared to the realized activity levels during a certain period of time, e.g. a week or month. Putting the relevant values into the BHSC would allow people to check whether they are achieving their goals and if not, in which direction they should reallocate their time.

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