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Just a perfect day? Developing a happiness optimised day schedule

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ABSTRACT

With the Day Reconstruction Method (DRM), Kahneman, Krueger, Schkade, Schwarz, and Stone (2004) introduced an important approach in subjective well-being (SWB) research to explore how people experience daily activities. A major unresolved question for laypeople and scholars alike resulting from this research, however, is the neglect of saturation and scarcity effects in this area of study. To fill this gap, we apply methods from optimisation research to the field of SWB. Combining utility functions with DRM data allows us to generate an optimal day schedule: It differs considerably from how people usually spend their time, whereby the distribution of activities is remarkably even. The results show how a paradigm shift away from a focus on increasing Gross Domestic Product towards greater well-being at the macrolevel could play out at the microlevel with potential consequences for how we might live our day-to-day lives.

1. Background

In the famous Lou Reed song, a "Perfect Day" consists of drinking sangria in the park, feeding animals in the zoo, *"then later, a movie, too, and then home"* (Reed, 1972). The question arises, however, what the burgeoning science of subjective well-being (SWB) has to say about the selection and distribution of activities on a "perfect day"? Such research has begun to move into the academic mainstream in the social sciences, as well as to attract considerable interest from policymakers (Bok, 2010; Dolan, Layard, & Metcalfe, 2011; Kahneman, Diener, & Schwarz, 1999; Layard, 2005). While most studies in this field regress SWB on data about people's living conditions such as marriage, income, or employment status (see e.g. Helliwell, 2003), Kahneman et al. (2004) have developed an important alternative method in order to study the effect of daily activities on well-being: the Day Reconstruction Method (DRM). Building on earlier work on time-use and well-being, for instance by Juster and Stafford (1985), and combining features of time-budget measurement and experience sampling, this approach asks participants to systematically reconstruct their activities and experiences of the preceding day and to report the feelings associated with those specific activities (using descriptions such as "happy" or "anxious"). Thus, an affective

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Table 1
Mean affect rating of various daily activities and interaction with different partners as reported by Kahneman et al. (2004, p. 1777).

	Mean affect rating					Mean (h/day)	Proportion of sample reporting
	Positive	Negative	Competent	Impatient	Tired		
Activities							
Intimate relations	5.10	0.36	4.57	0.74	3.09	0.2	0.11
Socializing	4.59	0.57	4.32	1.20	2.33	2.3	0.65
Relaxing	4.42	0.51	4.05	0.84	3.44	2.2	0.77
Pray/worship/meditate	4.35	0.59	4.45	1.04	2.95	0.4	0.23
Eating	4.34	0.59	4.12	0.95	2.55	2.2	0.94
Exercising	4.31	0.50	4.26	1.58	2.42	0.2	0.16
Watching TV	4.19	0.58	3.95	1.02	3.54	2.2	0.75
Shopping	3.95	0.74	4.26	2.08	2.66	0.4	0.30
Preparing food	3.93	0.69	4.20	1.54	3.11	1.1	0.62
On the phone	3.92	0.85	4.35	1.92	2.92	2.5	0.61
Napping	3.87	0.60	3.26	0.91	4.30	0.9	0.43
Taking care of my children	3.86	0.91	4.19	1.95	3.56	1.1	0.36
Computer/e-mail/internet	3.81	0.80	4.57	1.93	2.62	1.9	0.47
Housework	3.73	0.77	4.23	2.11	3.40	1.1	0.49
Working	3.62	0.97	4.45	2.70	2.42	6.9	1.00
Commuting	3.45	0.89	4.09	2.60	2.75	1.6	0.87
Interaction partners							
Friends	4.36	0.67	4.37	1.61	2.59	2.6	0.65
Relatives	4.17	0.80	4.17	1.70	3.06	1.0	0.38
Spouse/SO	4.11	0.79	4.10	1.53	3.46	2.7	0.62
Children	4.04	0.75	4.13	1.65	3.40	2.3	0.53
Clients/customers	3.79	0.95	4.65	2.59	2.33	4.5	0.74
Co-workers	3.76	0.92	4.43	2.44	2.35	5.7	0.93
Boss	3.52	1.09	4.48	2.82	2.44	2.4	0.52
Alone	3.41	0.69	3.76	1.73	3.12	3.4	0.90
Duration-weighted mean	3.89	0.84	4.31	2.09	2.90		
% time > 0	97%	66%	90%	59%	76%		

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daily profile can be generated consisting of the respondent's subjective experience of the activities that can be weighted by their duration.

Looking at the results of Kahneman et al.'s DRM study (2004) in Table 1, however, provokes the question among laypeople and scholars alike about the implications from this research. More precisely, how could these findings be used to inform the way we might spend our time in a way that increases well-being? A likely (but short-sighted) reaction would be to fully maximise the time spent with intimate relations and minimise the amount of time we spend commuting. This conclusion, however, fails to take into account two important caveats: First of all, even the most pleasurable activity has a decreasing marginal utility. That is to say that the joy we get out of the first hour of shopping is likely to be greater than during the fifth or sixth hour. Second, an inverse effect closely linked to the first problem is that certain activities are attractive because we do them so rarely.[1] Scarcity can therefore be expected to be a central feature of why we enjoy intimate relations more than work.

White and Dolan (2009, p. 1007) made an important addition to the DRM by incorporating the notion of reward. The authors, however, acknowledge the unresolved problems of saturation and scarcity by emphasising that "we do not know the SWB associated with a marginal unit of time in each activity." This crucial problem leads them to conclude that "until the issue of marginal rates is resolved [..] we remain cautious in making inferences for policy."

We propose a possible solution to those problems of saturation and scarcity here by applying methods from optimisation and economics to SWB. The procedure allows us to design an optimal day schedule based on DRM data which can be compared with people's actual daily schedule. In more straightforward terms, we are asking what would a 'perfect day' look like if we take into account the crucial fact that even the most pleasurable activities are usually less enjoyable the longer they last and the more often we do them? In a second step, we apply the methodology to interaction partners to find out how the optimal distribution of social interactions would look like taking into account saturation and scarcity effects. The justification of our method stems from Bernoulli's Expected Utility Hypothesis (1954 [1738]) which is a well-known, often employed concept in game theory, economics, and decision theory. It basically asserts that it is not the nominal value that should drive the decision but the utility that we derive from that value. Working under this assumption, using suitable utility functions we almost immediately account for scarcity, decrease in marginal utility, and risk aversion.

[1] For example, suppose we construct an optimal schedule allocating a large chunk of time to a certain preferred activity. It could happen that as a result we spend too much time on that activity, hence resulting in boredom and the attractiveness of the activity being reduced which would force us to adhere to a different schedule on the following day.