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TEMPORAL ASPECTS OF LIFE SATISFACTION

ABSTRACT. Time pressure is a familiar phenomenon. The quantity of spare time people have clearly effects their satisfaction with their leisure and with their life as a whole. But so too, we show, does how much control people have over how much spare time they have. We measure this through an indicator of 'discretionary time', which proves to be equally or more important than spare time itself in these connections.

KEY WORDS: discretionary time, happiness, leisure satisfaction, life satisfaction, spare time, time use

Whether 'time pressure' has actually increased in recent years is controversial, both among time-use researchers and among sociologists of post-industrial society more generally.[1] Indisputably, the amount of time spent in paid labour has grown into one of the major differences between the US and Western Europe over the last couple of decades (Jacobs and Gerson, 2004; Alessina et al., 2005). And certainly dissatisfaction with time pressure has grown ever more strident. The 'leisure class' increasingly complains it is 'harried' (Linder, 1970), Americans that they are 'overworked' (Schor, 1991), working wives and mothers of a 'time bind' as they put in a 'second shift' at home (Hochschild, 1989, 1997) and people generally that they are 'time poor' (Vickery, 1977).

The aim of this paper is to probe that subjective dissatisfaction with time pressure. We identify two distinct sources, typically conflated in ordinary time-use research.[2] One is how much or little 'spare time' remains after all the time people *actually* spend in paid labour, unpaid household labour and personal care. The other is the amount of 'temporal autonomy' that people enjoy in those respects. We operationalize the latter through a notion of 'discretionary time', defined as the amount of time remaining after the time people strictly *need* to devote to paid labour, unpaid household labour and personal care.

The central thesis of this article is that people's subjective sense of satis-
faction – with their 'leisure time' in the first instance, and more generally
with their 'life as a whole' – is influenced both by how much 'spare time' they
actually have and also, as importantly, by how much 'temporal autonomy'
(i.e., 'discretionary time') they enjoy.

Of course, control over resources – be they of time or of money –
makes only a modest contribution to one's overall life satisfaction,
compared to the much more important factors of personality and per-
sonal relationships, as studies of subjective well-being have consistently
shown (Diener et al., 1999). We focus on the time and money variables
we do because those are ones that can be influenced most directly
through social policy.

People might (and usually do) autonomously choose to spend more
time than strictly necessary in paid labour. They want more than a
poverty-level income; but 'poverty' represents 'bare necessity'. Similarly,
people might (and usually do) autonomously choose to spend more time
than strictly necessary in unpaid household labour (wanting a house that
is cleaner than minimally acceptable, socially) or in personal care
(sleeping more than strictly necessary, physiologically and otherwise).
Above the threshold of 'necessity', however, that is their choice. It is an
exercise of their autonomy, rather than a constraint on it.

How satisfied people are, with their leisure time or their life as a whole,
is a function of a great many things. How much 'spare time' they have is
definitely one. Even controlling for that (and a raft of other variables),
however, we hypothesize that people's subjective satisfaction is also a
function of how much autonomy they have in the allocation of their
time. Someone with little spare time – someone who spends long hours at
the office or over the stove – would, we predict, be more satisfied if that
were her choice than if that were dictated by necessities.[3]

Sociologists are rightly sensitive to the highly variable meanings and
perceptions of time (Nowotny, 1994; Adam, 2004). Here we explore those
issues only very partially and indirectly, through data of a quantitative
rather than qualitative sort. The German Socio-Economic Panel
(GSOEP) is one of the very few surveys in the world (and certainly the
most systematic one) which asks respondents both about time use and
about satisfaction with both their life and leisure.

We begin by recalling briefly the sorts of sociological and psychological
theories and findings that should lead us to expect that having (or even just
'having a sense of') control should make one feel better about oneself and
one's situation. We then describe more fully the key 'time' and 'satisfaction'

variables and the nature of the GSOEP data. We then report the results of multiple regressions of 'spare time' and 'discretionary time' on 'satisfaction with leisure time' and on 'life satisfaction' more generally.

Our conclusion is that temporal autonomy ('discretionary time') is a very important factor in people's satisfaction in both those dimensions, even after controlling for 'spare time' and much else. It is not just statistically significant; it is substantively significant as well, contributing at least as much to people's satisfaction in both those dimensions as do 'spare time' or 'income' themselves.

1. CONTROL MATTERS

In thinking about what it takes to make people satisfied, some things are obvious. As we have said, the main things have to do with personality and personal relationships. But social policy can affect those only very indirectly.

There are, however, other things that make people satisfied that can be more directly affected by public policy. Other things being equal, it is more satisfying to have more money rather than less. Other things being equal, it is more satisfying to have more spare time rather than less. In addition to all that, however, there is also a large body of evidence which we here survey briefly showing that, other things being equal, it is more satisfying to have more control rather than less.

Control might matter to people for instrumental reasons. The more control you have, the more you get what you want. Control might also matter to them intrinsically. Having more control is something you want, in and of itself, regardless of any further consequences it might have. Evidence suggests that, at least for large groups in the population, the latter is a major consideration. People report dissatisfaction with their life overall, despite being well-satisfied with all their current activities, if they do not have enough control over the choice of activities (Dow and Juster 1985, pp. 410–411).

The relation between having a sense of personal control and satisfaction or well-being has been studied from many different angles. A sense of personal control over one's daily life is positively correlated with greater health (Langer and Rodin, 1976, Pulkkinen et al., 1998; Marmot et al., 1991; Marmot, 2004), less depression and anxiety (Abramson et al., 1989; Warr, 1990) and greater happiness (Veenhoven 1984). Autonomy, measured in a way that captures both freedom to choose (which includes having economic resources and political freedom) and capability to choose (which includes education and information about options), has been shown to correlate with quality of life (Veenhoven, 1999).

A belief in one's ability to influence what happens makes one a more persistent problem-solver. The consequence is that more problems get solved, more goals attained, higher well-being achieved and hence, presumably, life satisfaction is higher as a result (Peterson, 1999).

Subjectively, people like having a sense of control. This is illustrated by an experiment conducted by Nichols and his colleagues (1994), who asked participants to choose between two options that were identical in every respect except that one option gave participants an illusion of control: participants systematically preferred that otherwise-identical option.[4] People might like having control because of a need to feel competent (Perlmuter and Monty, 1977), and people feel better if they can attribute outcomes (at least good outcomes) to their own actions (Weiner, 1985).[5]

A raft of studies thus show a positive relation between a sense of control and explicit 'life satisfaction' or self-assessed 'quality of life'. Having a sense of control makes people more satisfied with their lives (Duncan-Myers and Huebner, 2000; Lai and McDonald, 1995). Self-employed people are more satisfied with their lives than employed people doing equivalent work, even though the former work longer hours and earn less (Donovan and Halpern, 2002).

Much evidence of the effects of control on satisfaction comes from the literature on job satisfaction. According to Karasek's (1979) Job Demand-Control model (JDC), people whose jobs impose high demands but offer them little control have low levels of job satisfaction. This result is strongest when the relation between job demands and control and job satisfaction is assumed to be curvilinear in form.[6]

The notion of control used is not identical across all these studies of life satisfaction. What makes people persistent problem-solvers is more like 'perceived control', a belief that they themselves can influence what happens. Other studies use a notion that equates control with deciding when to do what and how much of it to do. Others equate control with having some influence over collective or hierarchical decisions (for example, not having decisions imposed on you without having had a say). Contrasting with those notions of control emphasizing sharing control over big decisions, another notion of control involves having exclusive decision power over small decisions (for example, somebody else might tell you what task you must perform but it is still left open to you to decide how best to do it). These are only a few of the different meanings of control to be found in the literature. The notion of control relevant for our study is, as we have said, closer to 'autonomy' versions of this concept.

In all, two basic conclusions seem to emerge from the existing literature. The first is that there is good reason to expect that control affects satisfaction. The second is that more needs to be known about different kinds of control and their relation to satisfaction.

2. MEASURING TIME AND SATISFACTION

2.1. *Measures of Time Use*

Time-use studies have been conducted in many countries since the interwar period. Methods of data collection vary. Most typically, respondents are given a diary in which they are asked to record what they were doing every quarter hour or so, over one or more days; but 'recall' methodologies asking people how much time they spent on various activities have been shown to be reasonably reliable as well (Robinson, 1985). People are ordinarily asked to describe their activities in their own words, with those self-reports then being coded by the researchers into standard time-use categories; but sometimes respondents are asked to say how much time they spent in pre-coded categories (Sorokin and Berger, 1939; Szalai et al., 1972; Robinson, 1977, 1985; Andorka, 1987).

One of the standard categories of time use is 'time spent in paid labour'. A second is 'time spent in unpaid household labour'– cooking, cleaning, childminding and the physical care of children, shopping, repairing the house, and so on. A third category is 'time spent in personal care' – eating, sleeping, grooming and so on. Time spent in those three sorts of activities collectively comprise time committed to 'obligatory' activities (Robinson, 1977, ch. 3; cf. Ås, 1982).

The 'time left over' after the activities in those other three categories is conventionally called 'free time' (Robinson, 1977, ch. 4; Andorka, 1987, p. 151). Here we call it 'spare time' instead, to distinguish it from 'discretionary time' (which is also 'free' in a separate sense). 'Spare time' as thus conceptualized is simply the residual that remains after taking account of time that people have *actually* committed to 'paid labour', 'unpaid household labour' and 'personal care'.[7]

'Discretionary time' is defined, in contrast, in terms of the amount of time left over after people have done the 'strictly necessary' amount in all three of those dimensions. Inevitably, what exactly is 'strictly necessary' is socially contentious; and it may well be that people are not free to choose to do only what we describe as the minimum that is 'strictly necessary'. Our specifications ought therefore be regarded merely as 'first approximations'. Still, it

is striking what strong results emerge from what are on their face such rough estimates of what 'strict necessity' amounts to in these realms.[8]

'Discretionary time' is the amount of time people have left after spending the 'strictly necessary' amount of time in 'paid labour', in 'unpaid household labour' and in 'personal care'. Start with 'paid labour'. What is 'strictly necessary' paid labour is, we assume, working as many hours as necessary to earn (at that person's wage rate) a poverty-level income for his or her household;[9] and responsibility for earning that is apportioned among adults in the household in proportion to their contribution to the household's total current income. Most people will want more than a poverty-level income, and will choose to work longer hours than required to get that; but 'poverty' defines what is 'strictly necessary'. For purposes of this study, we define 'poverty' in the conventional way: as half the median equivalent income across the country at large, using the square root of the number of members of the household as our 'equivalence scale' for commensurating households of different sizes.

All that, while not exactly uncontentious, is pretty standard (Atkinson, 1998, Lecture 1). By analogy to that, we suggest that what is 'strictly necessary' in terms of 'unpaid household labour' is 'half the median equivalent unpaid household labour done by households across the country at large'. The square root of the number of members of the household once again serves as our equivalence scale. We apportion total 'necessary time in unpaid household labour' among adult members of the household according to the proportion of unpaid household labour that they actually do.

What is 'strictly necessary' in terms of 'personal care' – eating, sleeping, grooming and so on – is not sensitive in the same ways to how many other people live in one's household. We therefore define that simply as the 'mean minus one standard deviation' in the amount of 'personal care' time of people across the country as a whole.[10]

'Discretionary time' is simply what remains, after deducting from the 168 h in the week 'necessary time' in each of those three activities. It is logically possible for 'discretionary time' to be less than 'spare time' (people might do less-than-necessary in some or all dimensions). But most typically 'discretionary time' far exceeds 'spare time' (because people prefer higher-than-poverty incomes, cleaner-than-minimally-necessary homes and more-than-minimally-necessary sleep).

2.2. *Satisfaction Measures*

Economists have traditionally been guilty of the sin of equating inputs with outputs, treating 'income' as 'satisfaction' when it is in truth merely a means

to it (Frey and Stutzer, 2002a, b). Social psychologists have, for a number of years, been asking people questions about 'satisfaction' directly (Veenhoven, 1984, 1999; Diener et al., 1999; Kahneman et al., 1999). The question they use is frightfully clunky. But it turns out to track an awful lot of what we want a measure of 'satisfaction' or 'utility' to track. So economists have begun coming around to the proposition that, finally, we have a good empirical measure of what matters, socially (Oswald, 1997; Easterlin, 2001; Frey and Stutzer, 2002a, b; Bjørnskov, 2003; Layard, 2005; Van Praag and Ferrer-i-Carbonell, 2005).

The 'life satisfaction' question is simply this: 'How happy are you at present with your life as a whole?' Respondents are asked to respond in terms of a scale running from zero (totally unhappy) to ten (totally happy).

In these studies, people are sometimes also asked how satisfied they are with various aspects of their lives. In the survey we will be using below, they were also asked specifically how satisfied they were with their amount of 'leisure time'. Again, the scale went from zero (totally unsatisfied) to ten (totally satisfied).

2.3. *Control Variables*

Happiness studies show that satisfaction correlates, strongly or weakly, with a whole raft of socio-demographic variables (Veenhoven, 1984; 1999; Diener et al., 1999; Donovan and Halpern, 2002; Frey and Stutzer, 2002a, b). In order to isolate the specific effects of temporal autonomy upon satisfaction, we therefore control for variables such as age, gender, marital status, children living at home, education, employment status and citizenship. (See Appendix Tables AI and AII for the full list and precise specifications.)

By controlling for marital status, we have controlled for the principal form of 'personal relationship' that has previously been shown to matter so heavily to 'life satisfaction' (Diener et al., 1999). While there are no explicit personality variables in the data we will be using, many of the things for which we are controlling (such as marital status, education, employment status, citizenship, and household income and individual wage rate as discussed below) presumably also correlate more-or-less strongly with those personality variables. We thus control, at least indirectly, for some of the more important effects of personality on satisfaction.[11]

Economic theory would lead us to expect that satisfaction should also correlate with the person's household income and the person's wage rate. Happiness studies bear out these predictions, albeit more weakly. Still, it is

important for us to include those variables as controls, when we are exploring the relationship between temporal autonomy and satisfaction. Discretionary time as we measure it is a function of one's wage rate and various components of one's household income, among other things. By controlling for the individual's wage rate and household income, we will be able to assess the impact of discretionary time on satisfaction net of the influence of those more familiar factors. Furthermore, by including both of those economic variables, we can distinguish what it actually is that makes people happy: more money (the household's income) or personal success in the competition of life (the individual's own wage rate).

Note that economic theory would lead us to expect a different sort of relationship between those two economic variables and the two different sorts of satisfaction under study here. As regards 'life satisfaction', richer is presumably always better: economic theory would lead us to expect a positive relationship between both wage rate and household income, on the one hand, and 'life satisfaction', on the other. But as regards 'satisfaction with amount of leisure time', economic theory would lead us to expect the opposite: the higher one's wage rate, the greater one's opportunity cost of leisure; hence the less time one devotes to it; and hence the less satisfied one is with one's amount of leisure time.[12] Such reasoning would lead economists to expect a negative relationship between wage rate and 'satisfaction with amount of leisure time'.

3.   THE DATA: THE GERMAN SOCIO-ECONOMIC PANEL

The data we will be analyzing come from the German Socio-Economic Panel. This survey has been conducted annually since 1984 by the German Institute for Economic Research. The analyses described below are based on data from 1995, the last year in which they asked all the questions needed for our analysis in the form that we required them.[13]

The GSOEP began with a large nationally representative sample of 13,919 individuals in 5921 households. When new households are formed out of splits in households in the original sample (as couples separate, or children leave and set up a household of their own), those are added to the sample. There is also supplementation to compensate for panel attrition; and whole new subpanels have been added (one for East Germany in 1990, another one for immigrants in 1995). As the sample grows increasingly skewed over time, weights are required to ensure representativeness.

The GSOEP provides information on all the standard socio-economic variables, such as household composition, employment status, hours worked, income, health, demographic characteristics and so on. Uniquely among such studies, the GSOEP also contains indicators of time use and satisfaction. The 'happiness' variables are as described above.

The time-use component of the GSOEP is based on whole-day recall of how much time people spent in a handful of pre-coded activities. This is far cruder information than typically collected by studies devoted exclusively to time-use. The coding categories used were also fairly rudimentary by the ordinary standards of time-use studies, forcing us to employ approximations not usually necessary in analyzing other time-use data.[14]

Despite these shortcomings, the unique conjunction of time-use and 'happiness' indicators found in the GSOEP makes that data an invaluable resource for researching the interconnections of concern here.[15]

4.   RESULTS: THE DIFFERENCE TEMPORAL AUTONOMY MAKES

The hypothesis to be tested here is that satisfaction (with one's amount of leisure time, and with one's life as a whole) is a function of one's amount of 'spare time', 'discretionary time', 'household income' and 'wage rate', controlling for a whole raft of other socio-demographic variables.

We take the natural logarithm of 'spare time', 'discretionary time', 'household income' and 'wage rate', on the grounds that each of those three independent variables should be expected to have diminishing utility in generating 'satisfaction'. That is familiarly so in the case of money, where the logarithmic functional form is standardly used. The same should also be expected to be true of both 'spare time' and 'discretionary time'. After all, if you have much spare time already, getting yet another hour's worth probably will not affect your satisfaction levels very much; but if you have been dashing around the whole day trying to take care of necessities, getting an hour to sit down and relax probably will make a big difference. We thus model both discretionary and spare time in ways that take into account diminishing marginal utility, using logged versions of those variables for the same reason that income variables are conventionally logged.[16]

4.1.   *Satisfaction with Leisure Time*

Let us begin by analyzing sources of people's satisfaction with their amount of leisure time, before turning to satisfaction with their lives as a whole. In

answering questions about their satisfaction with their leisure time, people
might be thinking of several things at once. One might be how much leisure
time they actually have (operationalized by our 'spare time' variable).
Another thing, we suggest, might be how much control they have over how
much leisure time they have – what we call 'temporal autonomy', as oper-
ationalized through our notion of 'discretionary time'. Yet other things
might be the person's wage rate (affecting the opportunity cost of leisure) or
household income. (Notice, however, that how much people can afford to
spend on leisure activities might be expected to have more effect on how
satisfied people are with what they do in their leisure time than with the
amount of it they have, which is what we will be examining here.[17])

   Table I shows the effects of 'discretionary time', 'spare time', 'household
income' and 'wage rate' – all logged – on 'satisfaction with amount of leisure
time', controlling for a raft of other socio-demographic variables. Three
models are presented in Table I, the first two entering 'spare time' and
'discretionary time' separately into the equation predicting satisfaction with
amount of leisure time, and the last entering them both simultaneously.

   Model 1 tests the most obvious thought, which is that how satisfied
people are with their amount of leisure time depends upon the amount of

TABLE I

Satisfaction with amount of leisure time

Dependent variable: satisfaction with amount of leisure time			
	Model 1	Model 2	Model 3
Discretionary time, log		0.348*	0.350**
		(2.63)	(2.69)
Spare time, log	0.292**		0.306**
	(8.87)		(8.36)
Household income, log	0.120	0.094	0.015
	(1.75)	(1.18)	(0.19)
Wage rate, log	−0.099*	−0.985	−0.067
	(−2.41)	(1.96)	(−1.28)
Socio-demographic characteristics included	Yes	Yes	Yes
Observations	11230	9627	9431
R^2	0.160	0.155	0.173

Notes: (1) Weighted linear regressions with robust standard errors. (2) *Significant at the 0.05
level; **significant at the 0.01 level. (3) *t*-Values in brackets. (4) The socio-demographic
characteristics included in the regressions are: age, gender, citizenship, marital status, children
living at home, education, employment status, and household size. See Appendix Table A1 for
full details.

time they have to spare for leisure activities – controlling for all sorts of other things. It turns out in that model (as in all others) that 'household income' makes no significant difference to people's satisfaction with their amount of leisure time. In this model, but only in this model, 'wage rate' (logged) has the negative effect on satisfaction with amount of leisure time that economic theory suggests. But the size of the coefficient suggests that any particular proportional change in wage rate will affect the satisfaction with amount of leisure time about a third as much as would the same proportional change in the amount of 'spare time' that people actually have.

Model 2 tests our alternative hypothesis in its purest form, which is that how satisfied people are with their amount of leisure time depends not upon the amount of time they have spare but rather upon their amount of discretionary control over the amount of time they have to spare – controlling again for the same other things. Again, 'household income' has no significant effect; and in this model, neither does 'wage rate'. But the amount of 'discretionary time' (logged) that people have does have a strong effect on how satisfied they are with the amount of leisure time they have.

Indeed, comparing Models 1 and 2, it looks as if 'spare time' and 'discretionary time' have a broadly similar effect on satisfaction with amount of leisure time. If anything, the coefficient on 'discretionary time' in Model 2 is rather higher than that on 'spare time' in Model 1 (although the standard error for the 'discretionary time' variable is also substantially greater, resulting in a lower t-statistic for 'discretionary time').

One speculation might be that the reason that Models 1 and 2 perform so similarly is that how much 'spare time' one has is largely a function of how much 'discretionary time' one has. We regarded that as unlikely, since in previous work (albeit on a different sample, and indeed a different country) we have found that the relationship between these varies considerably across different household types (Goodin et al., 2005). But clearly it is a possibility that must be explored.

Model 3 tests that proposition by entering both 'spare time' and 'discretionary time' into the same equation simultaneously. Doing that allows us to see what the effect of 'discretionary time' is on people's satisfaction with their amount of leisure time, *controlling for* how much 'spare time' they actually have (along with all the other income and socio-demographic controls).

In Model 3, 'household income' once again has no significant effect on people's satisfaction with their amount of leisure time. Neither does 'wage rate'. But *both* of the 'time' variables are highly significant. Statistically, both are significant at the 0.01 level. Substantively, each of the time variables seems

about as important as the other: the coefficient on the 'discretionary time' variable is 0.350, while that on the 'spare time' variable is 0.306. These best estimates suggest that a given proportional change in 'discretionary time' will lead to more or less the same absolute change in 'satisfaction with amount of leisure time' as will an equivalent proportional change in 'spare time'.

In short: it is hardly surprising to find a correlation (as in Model 1, Table I) between the amount of 'spare time' people have and how satisfied they are with their amount of leisure time. The more striking finding is that the amount of 'discretionary time' people have also has a significant effect on how satisfied they are with their amount of leisure time (as in Model 2, Table I). That is not simply because people who have more 'discretionary time' also have more 'spare time' (and hence more leisure time) – the regression in Table I's Model 3 controls for that. There is something about having more 'discretionary time', over and above the amount of 'spare time' people have, that makes people more satisfied with their leisure time.

What further is contributed by 'discretionary time', over and above 'spare time', is 'temporal autonomy'. People with more 'discretionary time' have more control over how much leisure time they have. Above we speculated – and Table I seems to confirm – that even if people did not have very much leisure time, they would be more satisfied with that situation if that were due to their own choice.

From Table I, it seems as if people really are more satisfied with their amount of leisure time if they have more control over how much time they spend on the various activities of daily life. Having a lot of discretionary time means that people could have taken more leisure time had they wanted to. They have chosen their own priorities in allocating their time as they do, and that is important for their satisfaction with the amount of leisure time they have. People become more satisfied with states of affairs, their leisure time among other things, the greater the extent to which those states of affairs embody priorities that are of their own choosing.

4.2. *Life Satisfaction*

Next let us consider how those same basic 'time' and 'income' factors impact on people's satisfaction with life as a whole. Table II reports the effects of 'discretionary time', 'spare time', 'household income' and 'wage rate' – all again logged – on 'life satisfaction'. Again, the results control for a raft of other socio-demographic variables. And again, results for three different models are reported, including each of the two time variables first separately and then both simultaneously.

TABLE II

Satisfaction with life as a whole

Dependent variable: satisfaction with life as a whole

	Model 1	Model 2	Model 3
Discretionary time, log		0.288*	0.288*
		(2.06)	(2.03)
Spare time, log	0.160**		0.166**
	(5.87)		(5.54)
Household income, log	0.343**	0.298**	0.253**
	(6.49)	(5.49)	(4.76)
Wage rate, log	0.018	−0.003	0.020
	(0.55)	(−0.09)	(0.53)
Socio-demographic characteristics included	Yes	Yes	Yes
Observations	11183	9583	9390
R^2	0.082	0.071	0.080

Notes: (1) Weighted linear regressions with robust standard errors. (2) *Significant at the 0.05 level; **significant at the 0.01 level. (3) *t*-Values in brackets. (4) The socio-demographic characteristics included in the regressions are: age, gender, citizenship, marital status, children living at home, education, employment status, and household size. See Appendix Table A2 for full details.

Unsurprisingly, when it comes to satisfaction with life as a whole, money matters. But while total 'household income' makes a significant difference in all three models, the individual's own wage rate does not. Hence it seems that it is the money, rather than 'winning the competition', that matters for people's life satisfaction.

Model 1 tests the proposition that how satisfied people are with their life as a whole depends upon their amount of spare time – controlling for both those economic variables and various other socio-demographic ones. From Model 1, we see that the amount of 'spare time' people have does indeed matter to their life satisfaction. But it matters to a substantially lesser extent than does 'household income': the coefficient for 'spare time' is less than half that for 'household income'.

Model 2 tests our alternative hypothesis that how satisfied people are with their lives as a whole depends instead upon their amount of discretionary control over the amount of time they have to spare (controlling again for all the same other things). The amount of 'discretionary time' that people have also proves to be significant for their overall life satisfaction. Indeed, the coefficient for 'discretionary time' is about the same as that on 'household income' itself (although again, the standard error for the 'discretionary time'

variable is also substantially greater, causing the *t*-statistic for 'discretionary time' to be lower).

To ascertain the effect of 'discretionary time' on people's satisfaction with their lives as a whole, controlling for how much 'spare time' they actually have (along with all the other income and socio-demographic controls), Model 3 enters both those time variables into the regression equation simultaneously. In Model 3, *both* of the 'time' variables are statistically significant – 'discretionary time' at the 0.05 level and 'spare time' at the 0.01 level. Substantively, the best estimate we have is that the effect of 'discretionary time' on 'life satisfaction' is (at 0.288) marginally greater than that of 'household income' (0.253) – and both have effects substantially stronger than 'spare time' (0.166). These estimates suggest that a given proportional change in 'discretionary time' will lead to a greater absolute change in 'life satisfaction' than will an equivalent proportional change in 'spare time'.

A priori, there might be grounds for worrying that these results are artifactual, in the sense that the factors that cause discretionary time to vary among people are also known to have independent effects on their life satisfaction. The strongest influence on life satisfaction, for example, is being partnered (Veenhoven, 1984, ch. 6; Diener et al., 1999, pp. 289–291, 2000; Donovan and Halpern, 2002, pp. 27–28; Frey and Stutzer, 2002a, ch. 4); and having a co-resident partner is reflected at two places in calculations of 'discretionary time' (household size influences necessary time in both paid and unpaid household labour). So, the worry would go, maybe the 'discretionary time' variable has the power it does not because temporal autonomy matters but rather because being partnered matters to life satisfaction.

Closer inspection of the socio-demographic controls involved in our analyses (alluded to in Table II and reported in full in Appendix Table AII) reveals that worry to be groundless, however. Among those controls are several dummy variables taking into account whether the respondent lives with a partner. Those particular control variables are indeed highly significant, just as previous studies would have led us to expect. But the important point for present purposes is that those effects have been controlled for in the analyses reported in Table II (and Table 1 as well, come to that). The strong effects that are there shown to be attributable to 'discretionary time' are net of the effects that living with a partner has on life satisfaction.

In short: 'temporal autonomy' does seem to matter. Of course people are more satisfied with their lives overall the more money they have (even after controlling for many other socio-demographic variables). They are also more satisfied with their lives overall the more spare time they have (even

after controlling for those other socio-demographic variables). Neither of those findings is surprising. What is more surprising is that – even after both those effects have been controlled for – people are also more satisfied with their lives overall the more control they have over how they allocate their time, as measured by our indicator of 'discretionary time'.

5. CONCLUSION

Autonomy is a core concern of liberal political and economic theory. Autonomous agents are agents who make their own decisions about the kind of life they want to have, agents who have the capability to 'reflect upon their own lives and shape them' (Dworkin, 1988, p. 31). The distribution of resources is important because, among other things, having resources is necessary for autonomy; we need resources to do the things we want to do with our lives. But when talking about control over resources, the focus is all too often fixed far too narrowly upon *financial* resources alone. That misses out on something very important, however. *Time* is the ultimate scarce resource (Zeckhauser, 1973). No amount of money can make agents autonomous, if every hour of their day is under external control; if others decide how we spend all of our time, we simply cannot live our lives as we see fit, regardless of our other resources. Therefore, if the way we live our lives is to reflect our own decisions, control over how we spend our time is of crucial importance.

Even if social scientists do not pay enough attention to this crucial resource, ordinary people do. On the evidence offered here, it seems that having control over their own time makes people more satisfied, with their leisure time in particular and with their lives as a whole. Why that should be so is hardly a mystery. Having control over one's own time means that the tradeoffs that are part of everyday life reflect priorities of one's own choosing. That is obviously something that people should care about. And on the evidence offered here, temporal autonomy is something that people do indeed care about.

APPENDIX

TABLE AI

Satisfaction with amount of leisure time

Dependent variable: satisfaction with amount of leisure time

	Model 1	Model 2	Model 3
Discretionary time, log	0.350 (2.69)	0.348 (2.63)	
Spare time, log	0.306 (8.36)		0.292 (8.87)
Household income, log	0.015 (0.19)	0.094 (1.18)	0.120 (1.75)
Wage rate, log	−0.067 (−1.28)	−0.985 (−1.96)	−0.099 (−2.41)
Number of persons in house-hold, square root	0.083 (0.49)	0.007 (0.04)	-0.148 (−0.99)
Age	−0.019 (−1.21)	−0.025 (−1.53)	−0.026 (−1.72)
Age, squared	0.000 (2.14)	0.000 (2.30)	0.000 (2.77)
Male	Reference group		
Female	−0.218 (−2.65)	−0.246 (−3.02)	−0.223 (−2.98)
	Model 1	Model 2	Model 3
Citizen of Germany	Reference group		
Foreigner from EU country	−0.341 (−2.05)	−0.339 (−2.04)	−0.327 (−2.12)
Foreigner from non-EU country	0.275 (1.39)	0.262 (1.32)	0.174 (0.97)
Married, with partner in Germany	Reference group		
Separated, no partner	−0.164 (−0.39)	−0.129 (−0.30)	−0.247 (−0.64)
Separated, with partner	−0.257 (−0.50)	−0.250 (−0.50)	0.201 (0.35)
Single, no partner	−0.144 (−1.01)	−0.025 (−0.17)	−0.153 (−1.16)
Single, with partner	−0.251 (−1.24)	−0.223 (−1.07)	−0.180 (−0.99)
Divorced, no partner	−0.161 (−0.84)	−0.095 (−0.52)	−0.126 (−0.71)
Divorced, with partner	−0.635 (−2.33)	−0.646 (−2.32)	−0.510 (−2.13)
Widowed, no partner	0.231 (1.20)	0.290 (1.51)	0.142 (0.78)
Widowed, with partner	0.403 (1.19)	0.402 (1.19)	0.420 (1.40)
Married, with partner in native country	−0.184 (−0.40)	−0.078 (−0.17)	−0.157 (−0.34)
No children living at home	Reference group		
Children living at home	−0.154 (−1.42)	−0.177 (−1.66)	−0.131 (−1.31)
Years of education, log	−1.092 (−6.36)	−0.994 (−5.79)	−1.040 (−6.60)
Employed full-time	Reference group		
Non-working	0.764 (3.84)	0.800 (4.16)	0.755 (4.78)
Retired	0.975 (4.08)	1.013 (4.30)	0.875 (4.35)
In education or training	0.183 (0.86)	0.554 (2.84)	0.254 (1.32)
Military service	0.567 (1.16)	0.174 (0.39)	0.658 (1.52)
Unemployed	0.993 (4.29)	0.998 (4.60)	0.878 (4.97)
Some work	−0.039 (−0.14)	0.221 (0.78)	0.281 (1.37)
Self-employed	−0.183 (−1.48)	−0.180 (−1.44)	−0.242 (−2.12)
Nationality not available	1.560 (2.96)	1.513 (2.64)	1.680 (3.61)

TABLE AI

Continued

Dependent variable: satisfaction with amount of leisure time			
Education not available	−3.041 (−5.38)	−2.841 (−4.96)	−3.084 (−6.11)
Constant	6.786 (6.93)	6.779 (6.89)	7.651 (9.77)
Observations	9431	9627	11230
R^2	0.173	0.155	0.160

Notes: (1) Weighted linear regressions with robust standard errors. (2) *t*-Values in brackets.

TABLE AII

Satisfaction with life as a whole

Dependent variable: satisfaction with life as a whole			
	Model 1	Model 2	Model 3
Discretionary time, log	0.288 (2.03)	0.288 (2.06)	
Spare time, log	0.166 (5.54)		0.160 (5.87)
Household income, log	0.253 (4.76)	0.298 (5.49)	0.343 (6.49)
Wage rate, log	0.020 (0.53)	−0.003 (−0.09)	0.018 (0.55)
	Model 1	Model 2	Model 3
Number of persons in household, square root	−0.147 (−1.18)	−0.189 (−1.53)	−0.234 (−2.00)
Age	−0.016 (−1.18)	−0.018 (−1.28)	−0.026 (−1.99)
Age, squared	0.000 (0.59)	0.000 (0.63)	0.000 (1.36)
Male	Reference group		
Female	0.085 (1.49)	0.070 (1.22)	0.074 (1.40)
Citizen of Germany	Reference group		
Foreigner from EU country	0.037 (0.27)	0.059 (0.42)	-0.041 (−0.30)
Foreigner from non-EU country	0.133 (0.77)	0.134 (0.78)	0.016 (0.10)
Married, with partner in Germany	Reference group		
Separated, no partner	−0.587 (−2.00)	−0.569 (−1.94)	−0.673 (−2.41)
Separated, with partner	−0.062 (−0.16)	−0.057 (−0.14)	−0.024 (−0.08)
Single, no partner	−0.337 (−3.15)	−0.280 (−2.64)	−0.332 (−3.33)
Single, with partner	−0.195 (−1.49)	−0.176 (−1.30)	−0.237 (−1.90)
Divorced, no partner	−0.608 (−4.39)	−0.562 (−4.04)	−0.587 (−4.41)
Divorced, with partner	−0.121 (−0.67)	−0.128 (−0.72)	−0.151 (−0.96)
Widowed, no partner	−0.634 (−4.36)	−0.601 (−4.14)	−0.623 (−4.36)
Widowed, with partner	−0.224 (−0.74)	−0.225 (−0.72)	−0.024 (−0.08)
Married, with partner in native country	−0.657 (−0.57)	−0.637 (−0.57)	−0.658 (−0.59)

TABLE AII

Continued

Dependent variable: satisfaction with life as a whole			
No children living at home	Reference group		
Children living at home	−0.099 (−1.19)	−0.106 (−1.29)	−0.110 (−1.39)
Years of education, log	−0.070 (−0.60)	−0.008 (−0.07)	−0.123 (−1.11)
Employed full-time	Reference group		
Non-working	−0.108 (−0.75)	−0.124 (−0,88)	−0.116 (−0.94)
Retired	0.121 (0.66)	0.112 (0.61)	0.087 (0.54)
In education or training	0.046 (0.29)	0.241 (1.62)	0.077 (0.52)
Military service	0.744 (1.96)	0.659 (2.05)	0.751 (2.15)
Unemployed	−1.38 (−7.28)	−1.40 (−7.32)	−1.294 (−8.69)
Some work	0.252 (0.98)	0.329 (1.30)	0.101 (0.57)
Self-employed	0.033 (0.42)	0.032 (0.40)	-0.021 (−0.26)
Nationality not available	0.564 (1.17)	0.593 (1.23)	0.534 (1.19)
Education not available	−0.091 (−0.26)	0.031 (0.09)	-0.297 (−0.87)
Constant	3.638 (4.54)	3.565 (4.45)	4.422 (7.20)
Observations	9390	9583	11183
R^2	0.080	0.071	0.082

Notes: (1) Weighted linear regressions with robust standard errors. (2) *t*-Values in brackets.

7.   NOTES

[1] Among the former, compare: Robinson and Godbey (1997), US Council of Economic Advisers (1999), Gershuny (2000), Hamermesh and Lee (2004), Schor (1991, 2000), Smeeding and Marchand (2003), Sullivan and Gershuny (2001). Among the latter, compare: Sorokin and Merton (1937), Wilensky (1961), Thompson (1967), Sirianni (1991), Offe and Heinze (1992), Nowotny (1994).

[2] Campbell et al. (1976, p. 349) explicitly conflate 'discretionary time' with actual 'spare time', and both with 'leisure time' (which is different yet again: Andorka 1987, p. 151). What we here call by the more colloquial (and more descriptively accurate) term, 'spare time', time-use researchers typically call 'free time'. In calling that *'free* time', time-use researchers point to a dimension that is sociologically important – but one that is only partially captured in their operational measure (which taps only 'free from', ignoring 'free to').

[3] Satisfied, that is, with '*how much*' leisure time she has. She might well be very satisfied with '*how she spends*' her leisure time, while regretting she does not have more of it; more generally, people can satisfied with the choices they are making but dissatisfied with the choice set from which they are making them (Dow and Juster, 1985, pp. 410–411).

[4] Specifically, participants were given lottery tickets as compensation for their participation in the experiment. Some were simply given a ticket, others were given the chance of choosing between different tickets. In either case, they then got the opportunity to sell their ticket back. The selling prices for the chosen tickets were higher than the prices for the tickets the

participants were simply given, even though the objective chances of winning were the same regardless of how the participants ended up with their tickets. The higher selling price is a measure of people's preference for even just this illusion of control (Nichols et al., 1994).

[5] However, people might also want to avoid having more control if the increased control will make people more responsible for outcomes in both their own eyes and the eyes of others, or will make them less likely to actually achieve their goals. For a discussion see Burger (1989).

[6] Most studies confirm even just a linear, additive relation (Van der Doef and Maes, 1999); but results are all the more unambiguous in studies using a curvilinear model.

[7] That conceptualization had to be varied operationally in the analysis reported below, given inadequacies of GSOEP coding categories described below.

[8] For further discussion of this concept and its operationalization, see Goodin et al. (2004) and (2005). There is a clear affinity, but also clear differences, between this notion and that of 'socially necessary labour time' found in Marxian economics (Postone, 1978).

[9] After taking into account the household's income from asset flows and private retirement income, as well as the amounts of private transfers, public transfers, social security pensions, and taxes the household can expect to receive if its equivalent income was around the poverty line. It is also necessary to take into account necessary travel time to work, which we calculate by first estimating the number of strictly necessary days at work during the week, which we take as the number of days at work that would be necessary if paid labour was concentrated into standard 8-h work days, and then multiplying this number by the mean actual time spent in travel to work during work days.

[10] Computing 'necessary time in unpaid household labour' in the same way would not yield dramatically different results to those obtained by computing 'necessary time in unpaid household labour' in the way described in the text.

[11] A more direct way of controlling for them would be to construct a 'fixed effects' model pooling data from successive waves of the GSOEP. Alas, one of the variables of central concern to us (concerning 'satisfaction with leisure time') was measured differently, in ways that we have both theoretical and empirical evidence to suppose might matter, in different waves.

[12] This is a variation on an argument from Hamermesh and Lee (2004), who report a positive relationship between subjective 'time pressure' and income.

[13] Specifically, the 1995 GSOEP survey measures 'satisfaction with leisure time' in a way that allows us to separate out questions of satisfaction with one's *amount* of leisure time from questions of satisfaction with what one *did* during one's leisure time. As noted above, there is both a theoretical reason and some related empirical evidence to suggest that responses to those two different sorts of questions might diverge; thus it seems inadvisable to merge several waves of the GSOEP in order to mount a 'fixed effects' model of the sort discussed in an earlier note.

[14] Most especially, there is no coding category in this GSOEP data for 'time spent in personal care'. In other time-use studies where this figure is reported directly, we treat 'spare time' as the residual of what is left over after deducting time spent in 'personal care', 'paid labour' and 'unpaid household labour' (Goodin et al., 2004, 2005). In the case of the GSOEP data we are forced instead to concoct a direct measure of 'spare time' – which we take to be how much time a person spends in 'education and continuing education (also school, college)' or in 'hobbies and other free-time activities'. In the GSOEP case, we then take 'time spent in personal care' as the residual of what remains after deducting the amount of time a person spends in 'paid labour', 'unpaid household labour' and 'spare time' thus construed.

[15] The British Household Panel Survey, for example, contains the 'happiness' question and several tapping 'time in paid labour'. But it has only one exceedingly rudimentary question concerning 'usual hours in unpaid household labour', and none at all either on 'time in personal

care' or on time in enough other activities from which we might concoct 'time in personal care'.
[16] When we checked the results for the non-logged variables as well, we found that logging the 'time' variables increases the R^2 for both the analyses reported below.
[17] We use the 1995 GSOEP survey rather than any later one precisely because the questions that year were framed in such a way as to allow us to separate out these two factors.

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