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Filling the gap between planning and doing: Psychological factors involved in the successful implementation of saving intention

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Abstract

Previous research on the psychology of saving has tended to compare groups of savers and non-savers without controlling for their intentions. As a result, the variables that are known to covary with saving/non-saving are mainly those that covary with forming saving intentions (attitudes, motives, etc.). However, the step from saving intention to actual saving is not straightforward and may require careful planning and efforts of self-control. In this respect it is important to know the factors that impact on the process of saving intention realisation. On the basis of insights from the behavioural life-cycle hypothesis [Shefrin, H. M. & Thaler, R. H. (1992). *Mental accounting, saving and self control*. In G. Lowenstein & J. Elster (Eds.) *Choice over time* (pp. 287–330). New York: Russell Sage Foundation.] and research on intention-behaviour consistency [Gollwitzer, P. M. (1993). *Goal achievement: The role of intentions*. In W. Stroebe & M. Hewstone (Eds.) *European Review of Social Psychology* (Vol. 4, pp. 141–186). Chichester, England: Wiley.], three factors are hypothesised to covary with successful implementation of saving intention: time horizon, usage of certain expenditure control techniques and perceived easiness of expenditure control. Two datasets are used in the study – a questionnaire survey conducted in Belarus in 2005 and several waves of the DNB Household Survey. In both datasets we compare two groups of respondents – those who planned to save and implemented this intention (the “plan-and-do” group) and those who planned to save, but failed to realise this plan (the “plan-in-vain” group). The data support the significance of time horizon and control techniques, while the 3rd factor – perceived easiness of expenditure control – receives mixed support.

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33

34 1. Introduction

35 Saving rates in Europe and the USA have fallen dramatically since the 1970s – early
36 1980s. An average American household today saves only about 0.5–1.0% of its disposable
37 income, compared to about 11% in 1984 (Ferguson, 2004). Similar trends are observed in
38 Europe: for example, household saving rates in the UK have fallen to 5.9% in 2000–2002
39 (compared to an average of 9.0% in 1990–1999), the percentage of household income
40 saved in Italy has halved since the 1980s, whilst in 2002 saving rates in Finland were neg-
41 ative (Dirschmid & Glatzer, 2004). An increase in the elderly population in developed
42 countries and the inability of social security systems to provide an appropriate level of
43 pension support brings the issue of personal saving to the front stage of contemporary
44 social research.

45 Previous research in the field has established a range of psychological factors that
46 covary with saving behaviour (see Nyhus, 2002; Wärneryd, 1999, for extended over-
47 views). However, these findings have two limitations. First, all research has been con-
48 ducted in developed countries with capitalistic economies. The variability of saving
49 behaviour and its covariates appears to be much larger when we account for data from
50 other regions with different economies (Rabinovich & Webley, 2004). Recently there has
51 been a significant interest in data from other economic and cultural environments in
52 order to test the applicability of findings in different settings (for example, Schrooten
53 & Stephan, 2003). Thus, it would be desirable to test whether results obtained on
54 capitalistic samples can be generalised to non-capitalistic environments. Second, previous
55 research has tended to compare groups of savers and non-savers without controlling for
56 their intentions. Differences in saving motives and intentions have been studied separately
57 (Canova, Manganelli Rattazzi, & Webley, 2005), and motives linked to saving
58 behaviour (Nyhus & Webley, 2001), but intention realisation issues have been overlooked
59 in the empirical attempts to predict actual saving (see Daniel, 1997). It was assumed
60 that as long as one intends to save the necessary action will be performed. However, sav-
61 ing may represent a complicated task that requires careful planning and efforts of self-
62 control (Thaler & Shefrin, 1981). In this respect it is important to know (in terms of both
63 theory and application) the factors that impact on the process of saving intention
64 realisation.

65 This paper aims to compensate for these limitations. First, attention is focused on the
66 intention realisation process. Two groups of respondents are compared: those who plan to
67 save and carry out their plans (“plan-and-do” group), and those who are unable to realise
68 their saving intentions (“plan-in-vain” group). A longitudinal approach is used in the
69 Dutch dataset in order to distinguish these groups. Second, along with some data from
70 the Netherlands, the study provides evidence from a transition economy (Belarus). The
71 data from two countries are used in order to test the generalisability of findings for differ-
72 ent economic settings.

73 Contemporary studies of factors that influence consistency between intentions and
74 actual behaviour fall into one of three types. Within the first, persistence in achieving a
75 goal is attributed to the inner characteristics of goal intention itself, such as its strength,
76 and binding to the goal is regarded as a consequence of these characteristics (Heckhausen
77 & Kuhl, 1985). The second seeks reasons for (in)consistency in the goal realisation process
78 in the cognitive domain, exploring anticipations of goal achievement or characteristics of
79 decision making process. Within this framework self-efficacy, outcome expectations and
80 affect towards action have been found to determine successful goal pursuit in the case
81 of behaviours aimed at weight regulation (Bagozzi & Edwards, 2000). Among decision
82 characteristics, decision effort investment, importance and confidence in a decision were
83 shown to be related to the likelihood of buying intention being realised (Dholakia & Bago-
84 zzi, 2003). The third type of research links the success of intention maintenance and real-
85 isation to self-regulatory practices reinforcing it, such as forming an “implementation
86 intention”. This term, introduced by Gollwitzer (1993), refers to the intention to perform
87 certain kinds of goal directed activity when the opportunity arises. Implementation inten-
88 tions were shown to enhance the likelihood of goal directed behaviour over and above the
89 influence of goal intention. This effect is achieved by bringing the opportunity for action
90 within the scope of attention of the potential actor and linking goal directed behaviour to
91 a clear situational cue, in other words, by partially automatising it. Using a wide range of
92 behaviours, Gollwitzer and Brandstätter (1997) clearly showed that development of an
93 implementation intention helps to overcome distractions and reach a goal.

94 Consistency between saving intention and behaviour has not been studied in detail
95 before; the only factor involved in saving intention realisation that has received consider-
96 able theoretical attention is self-control, a concept that has been discussed in relation to
97 saving for more than a century. According to Vohs and Baumeister (2004, p. 3) the term
98 “self-control” (used interchangeably with the term “self-regulation”) refers to “any efforts
99 by the human self to alter any of its own inner states or responses”. There is an established
100 tradition in psychology of measuring self-control as a stable personality trait. Recently,
101 this trait has been shown to be related to a range of outcomes, such as school grades
102 and interpersonal success (Tangney, Baumeister, & Boone, 2004). Böhm-Bawerk (1890)
103 and Fisher (1930) linked successful saving to individual differences in degree of impatience
104 (or thrift) that influenced subjective utility of future goods. In its turn, the degree of impa-
105 tience was dependent on a number of economic and socio-economic characteristics (such
106 as age and social class) and a number of personal characteristics, far-sightedness and
107 strong will (or self-control) among them.

108 Fisher (1930) proposed that self-control can be trained in the early stages of life. It is
109 also true that certain techniques can be applied in order to enhance self-regulation when
110 needed. Elster (1977) was the first to review and summarise techniques that allow us to
111 compensate for weak self-control. Among these are pre-commitment (binding oneself in
112 advance so that future impulses do not prevail), avoidance of risky environments, and
113 imposing general rules, such as avoiding debt. These early ideas stress that saving is diffi-
114 cult due to self-control problems and that making saving unavoidable through pre-com-
115 mitment and other techniques is important for its successful realisation.

116 These ideas were elaborated by Thaler and Shefrin in their “economic theory of self-
117 control” (1981) and later incorporated into the behavioural life-cycle hypothesis (Shefrin
118 & Thaler, 1988, 1992). Shefrin and Thaler described self-control difficulties associated with
119 saving in terms of a conflict between a “planner” and a “doer” – two selves with different

time horizons and consequently different optimisation strategies. The concept of two selves incorporates both self-control and time horizon issues: due to differences in time horizon the “planner” uses self-control resources in order to suppress actions guided by the “doer” with a short time horizon. Thaler and Shefrin also provide a rational explanation for the use of self-imposed rules such as living within one’s means and avoiding borrowing. They state that decreasing consumption at any given period requires self-control effort which is psychologically costly (although they assume that this effort is always possible and it is *only* a matter of cost). In order to avoid paying this cost, people engage in pre-commitment that helps to save self-control energy. Automatic regular transfer of part of one’s income into a pension account is a good example of a cost-free pre-commitment that facilitates saving, as this procedure means that a decision needs only to be made once and thus is costless in terms of self-control. Other rules include avoiding spending assets and a ban on spending future income. These rules are closely related to the authors’ idea of different propensities to spend from different mental accounts. In order to be useful, rules of thriftiness should be simple, have only rare exceptions and be incorporated in habits. Shefrin and Thaler provide numerous examples of their theory being supported by empirical facts (for example, the existence of Christmas clubs and evidence that people enrolled in pension plans at their workplace save more, as their saving is psychologically cost-free).

A new approach to saving and self-control was recently introduced by [Baumeister and Vohs \(2003\)](#), who explored the nature of the self-regulation function in relation to inter-temporal decisions. They describe self-control in terms of a power or energy resource which is limited, can be used for multiple different tasks (ranging from physical activity to highly responsible decision making) and is managed frugally by human beings.

In spite of the theoretical importance attached to the problem of saving intention realisation, there is hardly any empirical research. Some empirical investigations of self-control and saving were carried out by [Daniel \(1997\)](#), but the results were inconclusive. Recently, the self-control concept was studied in relation to impulse buying ([Faber & Vohs, 2004](#)). This investigation is highly relevant to saving as it is acknowledged that in their efforts to save people undertake actions to control their consumption ([Wärneryd, 1999](#)). Faber and Vohs understand self-control as a limited resource. They assume that intensive usage of self-control for one task reduces our ability to exercise it equally successfully in other tasks. Faber and Vohs experimentally depleted subjects’ self-control resources and then faced them with the tempting possibility of buying goods with discounts. They found out that those whose self-control was depleted tended to spend more on impulse.

Due to the dataset considerations, in this study we do not deal with the global construct of self-control, but with selected parameters that give us broader insight into relationship of self-control and saving. Relevant dataset considerations and hypotheses are discussed in the next section.

2. Dataset considerations and hypotheses

The Dutch dataset was not designed specifically for the purposes of this study. While the DNB Household Survey offers the advantages of large representative samples and longitudinal measurement, it provides a limited range of psychological variables to use. There is no direct measure of self-control in the Dutch dataset. However, the dataset includes

164 several measures that are related to the need for self-control in saving. The variables mea-
165 sured and their relevance to self-control are briefly described below.

166 2.1. Time horizon

167 Time horizon refers to the length of time period that is taken into account in the process
168 of planning expenditures and savings. It has been shown to be one of the most robust
169 covariates of saving behaviour in previous research (Nyhus, 2002; Wärneryd, 1999): it
170 helps to discriminate between savers and non-savers and to predict saving behaviour. Time
171 horizon is linked to the need for self-control in saving by the behavioural life-cycle hypoth-
172 esis (Shefrin & Thaler, 1988). According to the two selves model, those whose “planner”
173 dominates over the “doer” have a longer time horizon and are more likely to exercise self-
174 control successfully in order to suppress responses initiated by the “doer”. Thus, both time
175 horizon and active use of self-control are linked to the dominance of the “planner” who is
176 initiating saving behaviour. This serves the basis for our first hypothesis.

177 **Hypothesis 1.** The plan-and-do group has a longer time horizon than the plan-in-vain
178 group.

179 2.2. Expenditure control techniques

180 The idea that the use of certain techniques may enhance self-control resources and
181 increase the likelihood of saving was introduced by Elster (1977). One of the key tech-
182 niques described by him was pre-commitment: arrangements that provide a defense
183 against future impulses. The concepts of expenditure control techniques usage and self-
184 control are linked through the two theoretical perspectives: mental accounting (Shefrin
185 & Thaler, 1992) and implementation intention (Gollwitzer & Brandstätter, 1997). Accord-
186 ing to the mental accounting framework, certain techniques such as transferring money to
187 a separate account (or transferring it into a different currency) facilitate labeling this
188 money as a separate source distinct from other income. Different mental accounts have
189 a different propensity to spend, thus money labeled as “savings” through transfer to a dif-
190 ferent form are less likely to be spent. Consequently, when savings are transferred to a spe-
191 cific mental account, less self-control resources are required to refrain from spending it (i.e.
192 the propensity to spend is lower).

193 According to the implementation intention framework, goal attainment is facilitated
194 through formation of specific context-related plans. The effect is achieved due to linking
195 the desired behaviour to a specific situational trigger. For example, a person may decide
196 to floss their teeth after brushing them in the evening. In this case, “brushing teeth” would
197 be the trigger for the planned action. The planned action would happen partially automat-
198 ically and would require less will-power. In this respect, the use of certain expenditure con-
199 trol techniques that link saving to certain actions, events or time periods could facilitate
200 saving through influencing the amount of self-control resource necessary for action initia-
201 tion. For example, a decision to set aside a certain sum of money on the day salary is
202 received facilitates saving through making it an automatic consequence of the expected
203 event (receiving salary). This arrangement should be even more effective if the transfer is
204 done through a direct debit. These considerations form the basis of our second hypothesis.

205 **Hypothesis 2.** The plan-and-do group uses techniques that make saving automatic and
206 complicate spending savings more often than the plan-in-vain group. These techniques
207 include the automatic transfer of part of income into a saving account or (in Belarus) the
208 transfer of savings into a foreign currency.

209 2.3. *Perceived easiness of expenditure control*

210 Perceived easiness of expenditure control is related to the concept of perceived behav-
211 ioural control in the Theory of Planned Behaviour (Ajzen, 1985). We suggest that per-
212 ceived behavioural control is not always adequate in the case of saving (which is
213 permitted by planned behaviour theory) and thus other factors of actual behavioural control
214 may interfere (e.g. techniques usage). The significance of perceived easiness of expen-
215 diture control for saving was first demonstrated by Wärneryd (1998) and then replicated
216 by Webley, Burlando, and Viner (2000). In both studies this variable was included in the
217 optimal models for predicting saving. This variable is currently widely accepted as a pre-
218 dictor of saving behaviour (see also Nyhus, 2002). We hypothesise that it is also related to
219 successful saving intention implementation, which has not been tested before.

220 The relationship between perceived easiness of expenditure control and self-control is
221 twofold. First, perceived easiness of expenditure control is related to the general amount
222 of self-control resource available and can be used as a proxy measure for self-control. On
223 the other hand, perceived easiness is related to self-efficacy and reflects the perceived dif-
224 ficulty of a saving task and the perceived likelihood of achieving a saving goal. In this
225 respect, this measure reflects a perceived balance between a saving task's demand on
226 self-control resources and the actual availability of these resources. Thus, people who have
227 either strong self-control or perceive saving as an easy task in relation to self-control
228 resources available are more likely to have sufficient resources to realise their saving inten-
229 tion. Hence, our third hypothesis.

230 **Hypothesis 3.** The plan-and-do group will perceive expenditure control as an easier task in
231 comparison to the plan-in-vain group.

232 For all three hypotheses we intend to generalise the findings to non-capitalistic eco-
233 nomic setting. Thus, we test our hypotheses on two samples: capitalistic western economy
234 (Dutch sample) and non-capitalistic transition economy (Belarus).

235 3. Method and sample

236 The results from two datasets are presented here: a secondary analysis of the DNB
237 Household Survey that uses a large panel of Dutch respondents and a face-to-face ques-
238 tionnaire survey conducted in Belarus.

239 3.1. *Participants*

240 *Dutch.* Data were collected from a representative sample of the Dutch population with
241 computer-assisted methods. The sampling procedure used telephone directories as the
242 sampling frame. Respondents whose numbers were selected were contacted by phone
243 and invited to take part in the research in return for the use of a PC and modem. About

244 18% of households that were originally contacted agreed to participate. As some groups
 245 (such as single persons and older households) were less likely to agree, quotas for certain
 246 social parameters were introduced. Details of sample forming and data collection proce-
 247 dures can be found in Nyhus (1996).

248 The DNB Household Survey is conducted annually. Due to the drop-out rate, which is
 249 quite significant (see Table 1), the panel is regularly refreshed with new participants.

250 Using 1998–2004 data waves we identified four groups of respondents, whose
 251 agreement between saving plans and saving behaviour stayed the same for at least two
 252 subsequent years. This was done in order to select respondents with stable behavioural
 253 patterns.

254 Respondents in the first group planned to save and saved for two years subsequently.
 255 For example, people who planned in 2002 to put money aside next year and then saved in
 256 2003, and planned in 2003 to put money aside and saved in 2004 were in this group. It was
 257 named the “plan-and-do” group. The second group included respondents who planned to
 258 save, but did not save during two subsequent years. In 2002 they reported their intention
 259 to save the next year and then did not save in 2003, and again in 2003 they planned to save
 260 in the following year, yet did not save in 2004. This group was called the “plan-in-vain”
 261 group. Respondents in the third group repeatedly did not plan to save and did not in fact
 262 save. This was labelled the “saving rejection” group. Finally, the last group comprised
 263 respondents who did not plan to save, but somehow managed to save for two years sub-
 264 sequently. Only the first two groups are used in the following analysis. In order to distin-
 265 guish the groups, data from three subsequent waves of survey (2002–2004) were used.

266 The same procedure of distinguishing four groups was repeated for the years 2000–2002
 267 and 1998–2000. Thus, we analysed three sets of two groups: the first set is made up of peo-
 268 ple who behaved consistently in years 2002–2004, the second of those who did so in 2000–
 269 2002 and the third of those who demonstrated the same patterns of behaviour over the
 270 years 1998–2000. These are different sets of people, as the percentage who drop-out is very
 271 high (see Table 1) and the panel of respondents is replaced almost completely in four years.
 272 Bearing in mind that although the drop-out rate is high, it may be the case that newcomers
 273 drop-out more frequently than “core” participants who stay in the panel for years, and
 274 thus an overlap between datasets may emerge, we carefully checked for cases appearing
 275 in more than one dataset (this was possible as each case has a unique number). No cases
 276 appeared in two datasets. The group sizes and their weight in the general sample are given
 277 in Table 2.

278 The 2002–2004 sample consisted of 821 respondents, of whom 54.7% were male
 279 and 45.1% were female. Ages ranged from 23 to 91 (mean 51). Fifty-four percent were

Table 1
 Rates of drop-out in DNB household survey

Year	Frequency of drop-out	Percent of drop-out
2004	502	24.28
2003	697	29.56
2002	908	34.10
2001	567	29.32
2000	615	45.29
1999	515	37.73

Table 2
Split of total samples into groups with consistent behaviour

Group	2002–2004		2000–2002		1998–2000		Belarus	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Plan-and-do	706	86.0	424	87.6	230	81.3	104	37.0
Plan-in-vain	49	6.0	24	5.0	16	5.7	49	17.5
Saving rejection	63	7.7	34	7.0	37	13.1	111	39.5
Unplanned saving	3	0.4	2	0.4	0	0	17	6.0
Total	821	100	484	100	283	100	281	100

280 employees, 2.7% – self-employed, 0.9% – students and 18.9% – retired. The 2000–2002
 281 sample consisted of 484 respondents, of whom 57.2% were male and 42.8% female. Ages
 282 ranged from 23 to 85 (mean 51). Fifty-four percent were employees, 1.2% – self-employed,
 283 1.2% – students and 20.9% – retired. The 1998–2000 sample consisted of 283 participants,
 284 of whom 62.5% were male and 37.1% were female. Ages ranged from 29 to 81 (mean 56).
 285 Forty percent were employed and 15.6% – retired (other information on occupation cat-
 286 egories is not available).

287 Although the size of groups varies significantly over the years (due to the fact that the
 288 drop-out rate has somewhat decreased in recent years and general sample size increased),
 289 the percentage of respondents falling in each of the planning/saving group is very consis-
 290 tent. The plan-and-do group is the biggest – more than 80% of respondents plan to save
 291 and are able to realise their plans in two subsequent years. Other groups are significantly
 292 smaller. The plan-in-vain group comprises about 5–6% of the population and people who
 293 do not intend to save represent about 8%. Thus there is a small but consistent group of
 294 respondents who are not able to carry out their saving intentions.

295 *Belarusian.* The second data set was collected through a face-to-face questionnaire sur-
 296 vey in Minsk, the capital city of Belarus, in May 2005. The sample is representative for the
 297 city population by gender, age group and city district. Inside the specified cells respondents
 298 were chosen pseudo-randomly. There were 283 respondents (54% female), aged between
 299 20 and 79 (average age 39.6). The monthly reported individual income ~~ranged from 800~~
 300 ~~to 3,000,000 Belarusian roubles, with average income of~~ 448,000 roubles (about 225 US
 301 dollars), which corresponds well to the average income level in the city. Forty-two percent
 302 of respondents saved during the last year.

303 Respondents were allocated to the same four groups – plan-and-do, plan-in-vain, sav-
 304 ing rejection and unexpected saving – as the Dutch sample. The only difference was that
 305 saving plans in the Belarusian sample were measured retrospectively: respondents were
 306 asked to recollect whether they planned to save a year ago, whilst in the Dutch sample
 307 answers from the previous year's questionnaire were used.

308 3.2. Questionnaires

309 *Dutch.* Members of the panel completed five long questionnaires each year. In this
 310 paper only the data from the “Economic and Psychological Concepts” questionnaire
 311 are used. Full details of the questionnaires can be obtained from the DNB Household Sur-
 312 vey website (<http://www.uvt.nl/centerdata/dhs/>). The items included in the analysis are
 313 described in the “variables measurement” section below.

314 *Belarusian*. The questionnaire consisted of nine parts and 50 questions. It included
315 questions on saving socialisation, money management and temptation coping strategies,
316 saving behaviour and motives, usage of bank services, attitudes to money and socio-eco-
317 nomic and demographic indicators.

318 3.3. Variables measurement

319 *Time horizon*. The question about time horizon was the same in both questionnaires:
320 “People use different time horizons when they decide about what part of the income to
321 spend and what part to save. Which of the time horizons mentioned below is in your
322 household most important in regard to expenditures and savings?” (In the Belarusian
323 questionnaire the question asked “Which of the time periods is most important for
324 you. . .”). The answer options were different in the two questionnaires. For the Dutch sam-
325 ple they ranged from “next couple of months” to “more than 10 years from now”. For the
326 Belarusian sample they ranged from “next month or less” to “next 5–10 years”. The
327 answer options for Belarus were different because we knew from previous studies that
328 the time horizon for economic decisions in Belarus is very short (see Rabinovich & Web-
329 ley, 2004), so it was necessary to include the shorter option. There were five ordinal answer
330 options in both questionnaires. In the Dutch sample the cross-wave correlations for time-
331 horizon were not very high (2003/2004 $r = 0.42$; 2001/2002 $r = 0.43$; 1999/2000 $r = 0.42$).
332 In the Dutch sample all independent variables were measured in the first year of each two-
333 year period (for example, if a respondent demonstrated the same behaviour in 2003 and
334 2004, the independent variables were measured in 2003). This was based on the assump-
335 tion that parameters measured during the planning year would have more impact on
336 implementation behaviour; the parameters measured when the plan is already imple-
337 mented or failed are of less significance for prediction of success or failure. In the Belaru-
338 sian sample saving behaviour and independent variables were measured at one point of
339 time.

340 *Expenditure control techniques*. In the Dutch questionnaire nine expenditure control
341 techniques were listed. They included keeping a house-keeping book, not having credit
342 cards or cheques, securing tax return, having a limited amount of money on oneself, with-
343 drawing only a certain amount from the bank at the beginning of each month, transferring
344 a certain amount to a saving account automatically each month, returning things bought
345 on impulse back to shops, avoiding shopping and doing something else to control expen-
346 ditures. For each technique respondents had to answer whether they used it or not. The
347 kappa values (coefficients of inter-wave agreement) were not high for most techniques:
348 for automatic transfer to a separate account, 0.42–0.55; for avoiding shopping, 0.37–
349 0.39; for taking things back to shops, 0.32–0.45; for keeping a house-keeping book,
350 0.31–0.62; for not having a credit card or cheques, 0.16–0.40; for securing tax return,
351 0.28–0.40; for having little money on oneself, 0.35–0.38; for withdrawing a fixed amount,
352 0.38–0.41.

353 In the Belarusian questionnaire respondents were asked whether they used the follow-
354 ing expenditure control techniques: not keeping much money on oneself, avoiding going
355 shopping, planning budget in advance, keeping money for different purposes separately,
356 keeping a house-keeping book, persuading oneself that one does not need things that
357 are tempting, putting part of income separately and trying to forget about it, transferring
358 part of income into a separate bank account, transferring part of income into a foreign

359 currency, transferring foreign currency back to national currency by small amounts. Some
360 of the techniques were the same as for the Dutch sample, while others were specific for
361 Belarus.

362 For the purposes of the analysis some of the techniques were combined into a “minor
363 shopping-related techniques” scale. This included three highly correlated techniques in the
364 Dutch sample (avoiding shopping, having limited money on oneself and returning things
365 to shops) and two of these techniques in the Belarusian sample (avoiding shopping and
366 having little money on oneself; returning things back was not measured in the Belarusian
367 survey). If a respondent used at least one of these techniques, she scored 1 on the scale, if
368 she did not use any of them, she scored 0.

369 *Perceived easiness of expenditure control.* This was measured with one question which
370 was the same in both questionnaires: “How difficult is it for you to control your expendi-
371 tures?” with answers on a 7-point scale ranging from “very easy” to “very difficult”. For
372 the Dutch sample the cross-wave correlations for this item were 0.57 (2004/2003), 0.54
373 (2002/2001) and 0.21 (2000/1999).

374 *Saving plans and saving.* In the Dutch questionnaire respondents were asked “Are you
375 planning to put money aside in the next 12 months?” They had four ordinal answer
376 options from “yes, certainly” to “certainly not”. For the purpose of analysis the first
377 two options (“yes, certainly” and “yes, perhaps”) were combined together, and the same
378 was done with the two last options (“probably not” and “certainly not”). There was also a
379 “don’t know” option. The answers to this question were compared with the answers of the
380 same respondents to the question “Did you put any money aside in the last 12 months?” in
381 the following year’s questionnaire.

382 In the Belarusian questionnaire saving plans were measured retrospectively. Respon-
383 dents were asked the following question: “A year ago, did you plan to save during this
384 year?” They had to answer “yes” or “no”. Later in the questionnaire they were asked
385 whether they had saved during the last 12 months, with possible answers being “yes” or
386 “no”. Thus, in both questionnaires saving was measured by self-report measures.

387 4. Results

388 Outliers on income were removed in both datasets before the analysis.

389 4.1. Differences in time horizon

390 **Table 3** contains the results of pairwise comparisons between the plan-and-do and plan-
391 in-vain groups in Belarus and in three two-year periods in the Netherlands.

392 In all four datasets differences in time horizon between the plan-and-do and plan-in-
393 vain groups are statistically significant (see **Table 3**), with successful savers planning their
394 finances further ahead. At the same time estimates of effect size vary from year to year.
395 The effect size is very pronounced in the 1998–2000 period in the Dutch data, is moderate
396 in Belarusian sample, but is fairly small in the latest two periods of the Dutch data. How-
397 ever, the data consistently show that people who successfully implement their saving plans
398 have longer time horizons in comparison with those who fail to realise their plans. Thus,
399 **Hypothesis 1** is supported by the data.

400 As it may be argued that the result obtained is due to a positive relationship between
401 time horizon and income, we also present data for those respondents whose income lies

Table 3
Differences in time horizon

Variable		N	Mean	<i>t</i>	<i>p</i>	Cohen's <i>d</i>
Netherlands 2002–2004	Savers	692	2.32	2.76	.006	0.20
	Non-savers	47	1.83			
Netherlands 2000–2002	Savers	424	2.34	3.82	.001	0.25
	Non-savers	24	1.67			
Netherlands 1998–2000	Savers	230	2.42	5.297	<.001	2.26
	Non-savers	16	1.38			
Belarus	Savers	104	2.03	1.92	.057	0.33
	Non-savers	49	1.71			
Netherlands 2002–2004, income between 40th and 60th percentiles	Savers	529	2.31	3.02	.003	0.23
	Non-savers	38	1.76			
Belarus, income between 40th and 60th percentiles	Savers	89	2.00	1.65	.100	0.36
	Non-savers	38	1.71			

402 between 40th and 60th percentiles, representing 20% of the sample with income level closest to average. The results are still statistically significant for the Netherlands. Although 404 for the Belarusian sample the results are significant at the level of $p = 0.1$, the means of 405 time horizon length for two groups are the same as in the analysis for the whole sample 406 and the effect size of the difference is even bigger.¹ This shows that lower estimate of statistical significance of the difference is rather due to decreased number of observations in 408 this case. Thus, we conclude that the relationship between time horizon and saving plan 409 implementation exists independently of income level.

410 Table 4 provides evidence that the relationship between the length of time horizon and 411 successful saving is linear – the longer ahead people plan, the more likely it is that they will 412 implement their saving plans. For example, in the Belarusian sample 26.8% of respondents 413 who plan their finances for a month or less implement saving plans successfully, but the 414 percentage of successful savers increases up to 72.7% among those who plan for couple 415 of years ahead.

416 We have also controlled for age in this analysis. Entering age as a covariate in the GLM 417 analysis with time horizon as a dependent variable and type of saver as a predictor, we 418 found that after controlling for age the difference in time horizon between successful 419 and unsuccessful savers is still significant ($F = 2.5, p = 0.09$).

¹ We have also controlled for the influence of income by conducting a GLM univariate analysis with time horizon as a dependent variable, type of saver (plan-and-do vs. plan-in-vain) as a predictor and income as a covariate. The analysis showed that after controlling for income the difference in length of time horizon between two groups of savers is still significant ($F = 5.01, p = 0.002$).

Table 4
Percent of successful savers in groups with different time horizon

Length of time horizon	Netherlands 2000–2002		Belarus	
	N	Percent	N	Percent
Month or less	–	–	38	26.8
Couple of months	144	80.9	37	39.4
Year	89	89.9	19	59.4
Couple of years	118	90.8	8	72.7
5–10 years	48	92.3	2	100
More than 10 years	25	100	–	–

420 *4.2. Differences in usage of expenditure control techniques*

421 The data in Table 5 show that successful Dutch savers are often involved in contractual
 422 saving, transferring part of their income automatically into a different bank account. This
 423 should make saving psychologically easier, as it makes day-to-day efforts to save unneces-
 424 sary. On the other hand, respondents who are not able to realise their saving intentions use
 425 minor shopping-related techniques: they try to avoid shopping, keep little money on them-
 426 selves or return bought goods. Techniques used more by the “plan-in-vain” group are
 427 often less “technical”, simpler and require effort each day to carry them out.

428 The data for Belarus are different. The differences in the use of separate bank accounts
 429 between the two groups are insignificant and the percentage of respondents who use sep-
 430 arate accounts for saving is much lower. The reason is that opening a bank account in
 431 Belarus is a rather complicated procedure. It requires a certain amount of income which
 432 means that not everyone who wants to use this technique for expenditure control is able to
 433 do so. Consequently, people use other techniques that are more available – for example,
 434 they transfer their savings into foreign currency. We believe that this behaviour fulfils
 435 the same functions as transferring money into a separate account in the Netherlands: it
 436 keeps it separate and makes spending it more complicated. In addition, a transfer into for-
 437 eign currency is a precaution against inflation. The data in Table 5 show that Belarusian
 438 respondents who transfer their savings into foreign currency are more likely to implement
 439 their saving plans successfully.

440 We also controlled for the influence of income level in these findings. The users of sep-
 441 arate accounts are better-off in comparison with non-users in Belarus, which is expected
 442 and determined by banks’ policy. But users and non-users of the technique of transferring
 443 into a foreign currency do not differ in income level. The differences in income between the
 444 Dutch users and non-users of separate accounts are also statistically insignificant. Thus,
 445 the relationship between the use of expenditure control techniques and the realisation of
 446 saving plans exists independently of income. Hypothesis 2 is thus supported by the data.

447 *4.3. Differences in easiness of expenditure control*

448 The data on differences in perceived easiness of expenditure control are not conclusive
 449 (see Table 6). The differences between the plan-in-vain and plan-and-do groups are statis-
 450 tically insignificant in the Belarusian sample and in 1998–2000 period of the Dutch data.
 451 But differences for the 2000–2002 and 2002–2004 periods of the Dutch panel are significant

Table 5
Usage of Expenditure Control Techniques

Technique	Used more often by...	Netherlands 2002–2004			Netherlands 2000–2002			Netherlands 1998–2000			Belarus		
		χ^2	<i>P</i>	Minimal cell size	χ^2	<i>p</i>	Minimal cell size	χ^2	<i>p</i>	Minimal cell size	χ^2	<i>p</i>	Minimal cell size
Transferring income into separate account	Plan-and-do	22.94	<.001	18	13.18	<.001	8	5.82	.016	7	NS	–	11
Transferring saving into foreign currency	Plan-and-do	–	–	–	–	–	–	–	–	–	12.04	.001	19
Using minor shopping-related techniques	Plan-in-vain	NS	–	20	11.45	.001	10	7.83	.005	7	NS	–	10

Table 6
Differences in perceived easiness of expenditure control

Variable		N	Mean	t	p	Cohen's d
Netherlands 2002–2004	Savers	685	2.79	4.52	<0.001	0.34
	Non-savers	45	3.76			
Netherlands 2000–2002	Savers	424	2.77	1.84	0.067	0.17
	Non-savers	24	3.38			
Netherlands 1998–2000	Savers	230	2.45	NS	–	–
	Non-savers	16	3.00			
Belarus	Savers	104	3.12	NS	–	–
	Non-savers	49	3.39			

452 and have quite big effect sizes. Thus, the data do not fully support Hypothesis 3, but do
453 not allow us to reject it either.

454 5. Discussion

455 We hypothesised that three factors covary with successful implementation of saving
456 intention – time horizon, usage of expenditure control techniques and easiness of expen-
457 diture control.

458 Time horizon has been one of the most robust covariates of saving behaviour in previ-
459 ous research (Nyhus, 2002; Wärneryd, 1999): it helps to discriminate between savers and
460 non-savers and predict saving behaviour. This study shows that its influence is robust to
461 having an intention to save – the differences in time horizon still exist when only respon-
462 dents with saving intention are included in the analysis. This means that the impact of time
463 horizon is not limited to forming saving intentions. Not only do people who think ahead
464 understand the importance of saving more and are more inclined to make saving plans,
465 but they also carry out their plans more successfully. An explanation of the link between
466 time horizon and ability to realise saving plans through income differences does not hold
467 as the effect sizes of differences in length of time horizon between groups do not change
468 when controlling for income. Although income level correlates significantly with both abil-
469 ity to save and length of planning period (especially in Belarus), there is a covariation
470 between ability to save and time horizon independent of income. This relationship is also
471 likely to be robust to cultural differences. In this study we obtained very similar results for
472 two societies with very different historical and cultural backgrounds as well as different
473 economic conditions. Although the averages of planning period were very different in
474 two cultures (with a mode of a month or less in Belarus and a year in the Netherlands),
475 the significant differences in time horizon between plan-and-do and plan-in-vain groups
476 were found in both samples. Moreover, the relationship between time horizon and success-
477 ful saving plans implementation is likely to be linear.

478 Construal level theory (Liberman & Trope, 2004) links the notions of time perspective
479 and preferences in a way that can shed some light on the relationship between successful
480 saving and planning period. It states that if an event is at a far temporal distance it is eval-
481 uated from the perspective of its central attributes, while when we consider closer events,
482 peripheral attributes become more important. If we assume that saving is a central goal for
483 people who intend to save, then, according to this theory, it should be the focus of atten-
484 tion of people with a long time horizon. They would also be more likely to concentrate on

485 the central attributes of this goal, such as the final purpose of saving. People with a short
486 time horizon will be prone to concentrate on more peripheral aspects such as the restric-
487 tion of immediate consumption needs and this lessens their chance of realising saving
488 plans.

489 It is also possible that a shorter time horizon makes people underestimate future expen-
490 ditures. These people are less likely to take into account long-term factors such as the
491 growth of children's needs or inflation rates, they generally think about the future in less
492 detail and this makes their plans less elaborate and flexible, which is the reason for their
493 more frequent failure. This hypothesis needs further investigation.

494 The importance of expenditure control techniques that emerged in this study stresses
495 the issue of self-control in relation to saving and reinforces the view that similar psycho-
496 logical processes underlie saving and other behaviours requiring self-control (such as diet-
497 ing). The techniques that covary with successful implementation of saving plans have one
498 thing in common: they make the saving process partially automatic and require less reli-
499 ance on will-power (unlike other strategies that are more often used by plan-in-vain group,
500 such as avoiding shopping, having little money on oneself and returning things to shops).
501 The successful expenditure control techniques may result from "implementation inten-
502 tions": sets of simple rules that link a desired behaviour to clear situational clues (such
503 as "as soon as I get my salary, I will transfer 20% of it to a separate account"). These find-
504 ings are in line with previous research showing that forming an implementation intention
505 increases the chances of successful plan realisation (Gollwitzer & Brandstätter, 1997).

506 The results on the use of expenditure control techniques are also in line with research on
507 problematic debt by Webley and Nyhus (2001) who found that more "high-tech" and
508 long-term techniques such as automatic bank transfer are more often used by people with-
509 out debts, while debtors more often avoid shopping and return things to shops.

510 The mental accounting perspective is another framework that is relevant to the results
511 on the usage of expenditure control techniques. Keeping money in a separate account or in
512 a separate currency not only complicates spending it physically, but also fosters a different
513 psychological perception of this money. As soon as money is transformed to a different
514 form or account, it is incorporated into the "assets" mental account which is less likely
515 to be spent.

516 The notions of self-control, mental accounting and time horizon are all linked to saving
517 in the behavioural life-cycle theory (Thaler & Shefrin, 1992). The assumptions of this theory
518 are largely supported by the data. The fact that successful and unsuccessful savers differ in
519 the length of time horizon is in line with the two selves model. In terms of the behavioural
520 life-cycle hypothesis, having a long time horizon means being under the control of the
521 "planner" who ensures that saving plans are carried out. Differences in the usage of expen-
522 diture control techniques relate to the behavioural life-cycle hypothesis in two ways. First,
523 the automatic transfer to a separate account is a typical example of a self-imposed rule that
524 reduces the psychological cost of restricting consumption by avoiding frequent decision
525 making. Second, useful techniques activate the usage of other rules – such as a ban on
526 spending assets – through transferring saved income into a different mental account. Thus,
527 the data provide some support for two concepts of the behavioural life-cycle hypothesis –
528 the two selves model and the mental accounting framework.

529 The results for perceived easiness of expenditure control may be inconclusive for two
530 reasons. We suggested that people who perceive expenditure control as an easier task either
531 need less energy to cope with it or have more self-control resources initially and thus have

532 higher chances of exercising expenditure control successfully. But although expenditure
533 control may be perceived as an equally easy task by two people, they may have different
534 other demands for their self-control resource and thus have different amount of self-control
535 to deal with an expenditure control task. Although we measured the construct that reflects
536 perceived easiness of the task and initial amount of will-power available to achieve it, we
537 did not control for other demands for will power in the respondents' environment. The
538 other possible reason is the imperfection of measurement – easiness of expenditure control
539 was measured with only one item and did not account for individual differences in general
540 self-control.

541 This study does have some limitations. First, the intensity of intention to save was not
542 controlled for, although it might have a significant impact on intention-behaviour consis-
543 tency (see for example Gollwitzer, 2006).² Second, the degree of intention implementation
544 was not measured. The participants were not asked how much they planned to save, so it
545 was not possible to measure whether they completely realised their plan (i.e. planned to
546 save €100 and saved €100) or less (for example, saved €50 whilst they planned to save
547 €100). Thus, the respondents were classified as successful savers if they reported any sav-
548 ings, even if this was a smaller sum than the one they intended to save. These limitations
549 were imposed by the Dutch data. It would be desirable to control for intensity of intention
550 and degree of plans realisation in future research.

551 Another limitation of the study is related to the small cell sizes in the analysis of expen-
552 diture control techniques usage. Both the number of unsuccessful savers and the number
553 of users of some techniques were rather small in the earlier waves of the Dutch data. How-
554 ever, wherever this problem occurs, the results in question are supported (by statistically
555 significant results or by the tendency) by the results from other waves, which do not suffer
556 from the small cell size problem.

557 It is also necessary to note that the focus of this paper is on individual saving. However,
558 the saving decisions of individuals who are members of households are influenced by other
559 household members. This problem is beyond the scope of this paper, but represents a
560 promising direction for future research (see for example Meier, Kirchler, & Hubert, 1999).

561 Finally, the reliability of the findings is slightly compromised by the differences in mea-
562 surement of saving intention in the two samples. The retrospective measure of saving plans
563 (used in the Belarusian sample) may be biased, as the result of the saving attempt is
564 already known by the time of reporting. However, in spite of this problem, the results
565 of the analysis are very consistent with the Dutch sample findings, where a longitudinal
566 approach was used. This consistency, in spite of differences in measurement, lends even
567 more support to the conclusions.

568 The results of this study have implications for further research. First, the relationship
569 between self-control and saving should be explored in more detail. Especially beneficial
570 would be any attempts to establish causal links. For example, currently available data
571 do not allow us to state that there is a causal link between the usage of certain expenditure

² The Dutch data provided a measure of commitment to saving plans (“Are you planning to put money aside in the next 12 months?”) with four ordinal answer options from “certainly yes” to “certainly not”) that could be interpreted as a measure of intensity of intention. Our preliminary analysis showed that the percentage of those who implemented their intention did increase with the increase of intention intensity as measured by the above indicator. However, for the purposes of the study this measure was recoded into two options (having or not having intention to save) (see Section 3).

572 control techniques and successful realisation of saving plans, although the fact of the rela-
573 tionship between two variables has strong factual support. Proceeding from the regulatory
574 resource model (Baumeister & Vohs, 2003), we can also suggest that there should be a link
575 between depletion of self-control energy and failure to implement saving plans. Testing
576 this hypothesis requires an experimental approach.

577 If there is a relationship between self-control and successful saving, it is important to
578 know what other factors can interfere with this. Physical exhaustion and stress are hypoth-
579 esised to decrease one's ability to exercise self-control (Baumeister & Heatherton, 1996),
580 and thus these variables may be related to the implementation of saving intention. This
581 possibility may have considerable social significance, as it means that low saving rates
582 among lower social classes may be associated not only with lower income, but also with
583 higher levels of general stress.

584 This paper has looked at saving behaviour from a new perspective, investigating the
585 factors that interfere with the process of saving intention realisation and compensating
586 for the previous lack of attention to the step from planning saving to implementation
587 of those plans. It has shown that several psychological and behavioural factors, such as
588 time horizon and usage of expenditure control techniques are reliably related to success
589 in realisation of saving plans.

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