

Electronic Companion to “A Measurement of Decreasing Impatience for Health and Money” by Han Bleichrodt, Yu Gao, Kirsten I.M. Rohde

In the main analysis we had to remove six subjects who always chose the better outcome regardless how long they had to wait for it in some choice lists. These subjects are extremely patient. To explore whether the exclusion of the most patient subjects led to a bias, we performed a robustness check where we also removed the six most impatient subjects. This document shows the results of this robustness check. To identify the most impatient subjects, we computed the average willingness to wait and removed the six subjects with the lowest scores on this index.¹ We will denote Tables and Figures as *R number*, where R stands for robustness and the number is the same as the number in the paper for easy reference. So Table R3 corresponds to Table 3 in the paper.

Tables R3 and R4 show the classifications of the subjects for health and money.

Table R3: Classification of subjects for health

		Sequence H2			<i>Subtotal</i>
		Decr. imp.	Incr. imp.	Const. imp.	
Sequence H1	Decr. imp.	26	5	4	35
	Incr. imp.	4	8	0	12
	Const. imp.	1	1	8	10
<i>Subtotal</i>		31	14	12	Total: 57

Table R4: Classification of subjects for money

		Sequence M2			<i>Subtotal</i>
		Decr. imp.	Incr. imp.	Const. imp.	
Sequence M1	Decr. imp.	21	6	2	29
	Incr. imp.	10	8	2	20
	Const. imp.	0	1	7	8
<i>Subtotal</i>		31	15	11	Total: 57

¹ We also tried other strategies to identify the most impatient subjects, but this had no effect on the conclusions.

Figure R5 presents the DI indices for the two health sequences. The mean DI indices were significantly positive for both sequences (Wilcoxon test, both $p < 0.01$) indicating decreasing impatience for health. The DI indices did not differ between the two health sequences (Wilcoxon test, $p = 0.92$). The correlation between the two DI indices decreased slightly, but remained substantial ($\rho = 0.57, p < 0.01$).

Figure R5: DI indices for the two health sequences

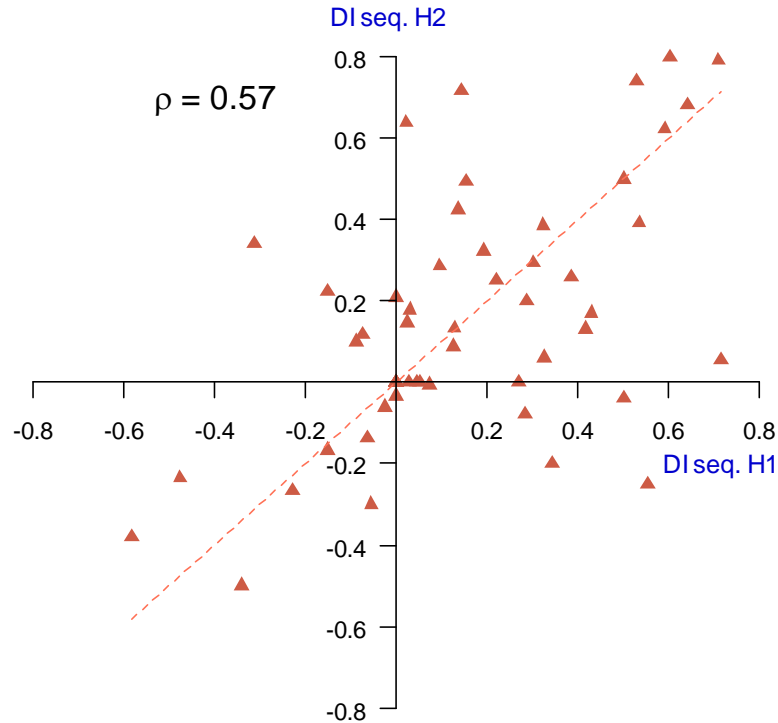
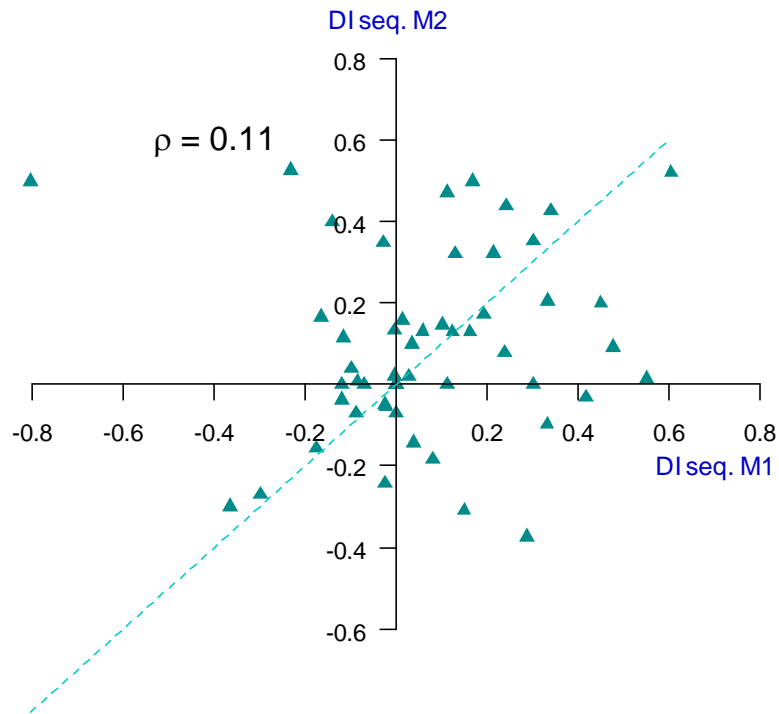


Figure 6 shows the DI indices for the two money sequences. The means of both sequences differed from 0 (Wilcoxon test, $p = 0.01$ for sequence 3 and $p < 0.01$ for sequence 4). The DI indices did not differ between the two money sequences (Wilcoxon test, $p = 0.60$). The correlation between the DI indices for money was slight ($\rho = 0.11, p = 0.40$) and not significantly different from 0. However, the NS indices were significantly correlated for the two

money sequences ($\rho = 0.54, p < 0.01$) signaling similar deviations from constant impatience in the two sequences.

Figure R6: DI indices for the two money sequences



The DI indices indicated more decreasing impatience for health than for money, but this effect was only significant in the comparison between sequences H1 and M1.² The NS indices showed that the deviations from constant impatience were significantly greater for health than for money.³ The positive NS indices for sequences H2 and M2 violate quasi-hyperbolic discounting.

² Wilcoxon tests, $p = 0.02$ in the comparison between sequences H1 and M1, $p = 0.07$ in the comparison between H1 and M2, $p = 0.06$ in the comparison between sequences H2 and M1, and $p = 0.15$ in the comparison between sequences H2 and M2.

³ Wilcoxon tests, $p = 0.02$ in the comparison between sequences H1 and M1, $p = 0.04$ in the comparison between H1 and M2, $p = 0.03$ in the comparison between sequences H2 and M1, and $p = 0.05$ in the comparison between sequences H2 and M2.

These sequences do not involve the present and, consequently, quasi-hyperbolic discounting predicts constant impatience

Hyperbolic factors

We could not reject the null hypothesis of equal hyperbolic factors within sequences H1, M1, and M2 (Friedman test, all $p > 0.21$), but we could reject the null for sequence H2 ($p = 0.01$). Most median values were zero and whereas all sequences contained at least one hyperbolic factor that was significantly different from 0 at the 1% level, this was true for more than 50% of the hyperbolic factors only for sequences H1 and M1. The prediction of power discounting that the hyperbolic factor is equal to 1 could be rejected in all tests (Wilcoxon test, all $p < 0.01$).

Quasi-hyperbolic discounting could also be rejected. If we remove the present from sequences H1 and M1 then we could reject the quasi-hyperbolic prediction that the hyperbolic factors are all equal to zero (Wilcoxon test, in both sequences two out of three hyperbolic factors differed significantly from zero at the 1% level).