Results of Experiment 2

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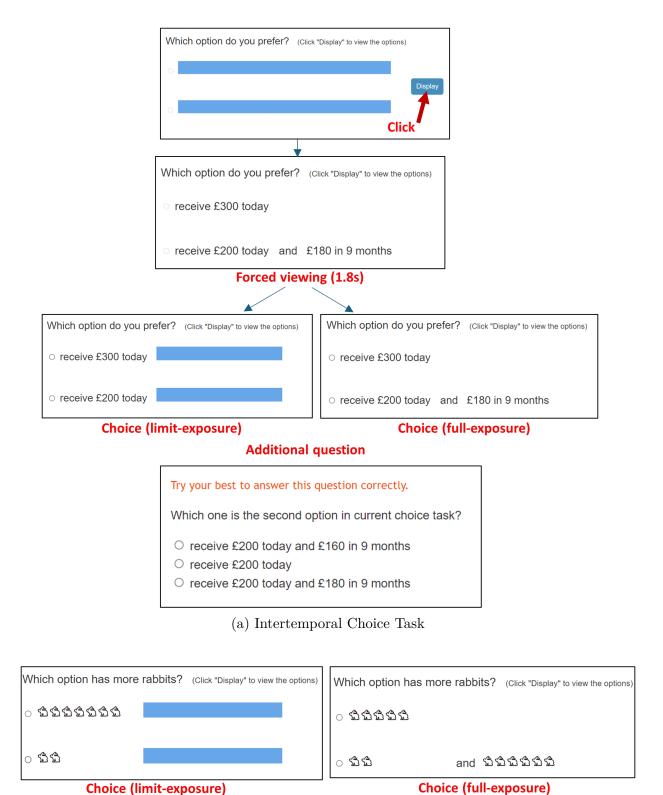
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1 Experiment 3: Causal Manipulation of Attention

1.1 Procedure

We recruited 300 UK residents via Prolific. Participants are asked to complete a series of choice tasks. At each time there is only one task presented on the screen. These tasks are divided into four parts. Before each part begins, there are 2-3 example tasks to help participants get familiarized with the tasks in the corresponding part.

In Part 1-2, each choice is between a single immediate monetary reward and a sequence of two monetary rewards. Participants have to choose the option they prefer.



(b) Count-the-Rabbits Task

Figure 1: Screenshot of Experiment 3

Table 1: Regression Results for Intertemporal Choice Tasks

Group(1) Pooled(2) FE(3) FEGroup 0.082 0.034 -0.1 Question·1{Group = 0} 0.084 0.289 0.289 Question·1{Group = 1} 0.223^{***} 0.535^{***} 0.535^{***} Question·1{Group = 1} 0.223^{***} 0.535^{***} 0.535^{***} $1\{\rho = 0.2\}$ -0.276^{***} -0.756^{***} -0.756^{***} $1\{\rho = 0.3\}$ -0.276^{***} -0.915^{**} -0.915^{**} $1\{\rho = 0.4\}$ -0.254^{***} -0.688^{***} -0.688^{***} $1\{\rho = 0.4\}$ -0.254^{***} -0.688^{***} -0.688^{***} $1\{\rho = 0.5\}$ -0.193^{**} -0.516^{**} -0.516^{**} $1\{\rho = 0.6\}$ -0.468^{***} -0.516^{**} -0.516^{**} $1\{\rho = 0.6\}$ -0.686^{***} -0.516^{***} -0.516^{***} $1\{\rho = 0.6\}$ -0.665^{***} -0.53^{***} -0.53^{***} $1\{\rho = 0.6\}$ -0.665^{*				
$\begin{array}{llllllllllllllllllllllllllllllllllll$		(1) Pooled	(2) FE	(3) FE
$\begin{array}{c} \text{Question} \cdot 1\{\text{Group} = 0\} & 0.084 & 0.289 & 0.289 \\ & (0.059) & (0.185) & (0.183) \\ \\ \text{Question} \cdot 1\{\text{Group} = 1\} & 0.223^{***} & 0.535^{***} & 0.535^{***} \\ & (0.067) & (0.162) & (0.161) \\ \\ 1\{\rho = 0.2\} & -0.276^{***} & -0.756^{***} & -0.756^{***} \\ & (0.051) & (0.135) & (0.133) \\ \\ 1\{\rho = 0.3\} & -0.333^{***} & -0.915^{***} & -0.915^{***} \\ & (0.059) & (0.156) & (0.155) \\ \\ 1\{\rho = 0.4\} & -0.254^{***} & -0.688^{***} & -0.688^{***} \\ & (0.061) & (0.166) & (0.164) \\ \\ 1\{\rho = 0.5\} & -0.193^{**} & -0.516^{**} & -0.516^{**} \\ & (0.071) & (0.194) & (0.192) \\ \\ 1\{\rho = 0.6\} & -0.468^{***} & -1.281^{***} & -1.281^{***} \\ & (0.081) & (0.22) & (0.218) \\ \\ 1\{s = 240\} & 0.191^{***} & 0.53^{***} & 0.53^{***} \\ & (0.044) & (0.119) & (0.118) \\ \\ 1\{s = 280\} & 0.665^{***} & 1.795^{***} & 1.795^{***} \\ & (0.058) & (0.126) & (0.125) \\ \\ 1\{s = 320\} & 0.475^{***} & 1.293^{***} & 1.293^{***} \\ & (0.053) & (0.124) & (0.123) \\ \\ \text{observations} & 7056 & 4416 & 7056 \\ \\ \end{array}$	Group	0.082	0.034	-0.1
$\begin{array}{llllllllllllllllllllllllllllllllllll$		(0.189)	(0.102)	(0.096)
$\begin{array}{c} \text{Question-1}\{\text{Group}=1\} & 0.223^{***} & 0.535^{***} & 0.535^{***} \\ & (0.067) & (0.162) & (0.161) \\ 1\{\rho=0.2\} & -0.276^{***} & -0.756^{***} & -0.756^{***} \\ & (0.051) & (0.135) & (0.133) \\ 1\{\rho=0.3\} & -0.333^{***} & -0.915^{***} & -0.915^{***} \\ & (0.059) & (0.156) & (0.155) \\ 1\{\rho=0.4\} & -0.254^{***} & -0.688^{***} & -0.688^{***} \\ & (0.061) & (0.166) & (0.164) \\ 1\{\rho=0.5\} & -0.193^{**} & -0.516^{**} & -0.516^{**} \\ & (0.071) & (0.194) & (0.192) \\ 1\{\rho=0.6\} & -0.468^{***} & -1.281^{***} & -1.281^{***} \\ & (0.081) & (0.22) & (0.218) \\ 1\{s=240\} & 0.191^{***} & 0.53^{***} & 0.53^{***} \\ & (0.044) & (0.119) & (0.118) \\ 1\{s=280\} & 0.665^{***} & 1.795^{***} & 1.795^{***} \\ & (0.058) & (0.126) & (0.125) \\ 1\{s=320\} & 0.475^{***} & 1.293^{***} & 1.293^{***} \\ & (0.053) & (0.124) & (0.123) \\ \end{array}$	$Question \cdot 1\{Group = 0\}$	0.084	0.289	0.289
$1\{\rho=0.2\} \qquad (0.067) \qquad (0.162) \qquad (0.161)$ $1\{\rho=0.2\} \qquad -0.276^{***} \qquad -0.756^{***} \qquad -0.756^{***}$ $(0.051) \qquad (0.135) \qquad (0.133)$ $1\{\rho=0.3\} \qquad -0.333^{***} \qquad -0.915^{***} \qquad -0.915^{***}$ $(0.059) \qquad (0.156) \qquad (0.155)$ $1\{\rho=0.4\} \qquad -0.254^{***} \qquad -0.688^{***} \qquad -0.688^{***}$ $(0.061) \qquad (0.166) \qquad (0.164)$ $1\{\rho=0.5\} \qquad -0.193^{**} \qquad -0.516^{**} \qquad -0.516^{**}$ $(0.071) \qquad (0.194) \qquad (0.192)$ $1\{\rho=0.6\} \qquad -0.468^{***} \qquad -1.281^{***} \qquad -1.281^{***}$ $(0.081) \qquad (0.22) \qquad (0.218)$ $1\{s=240\} \qquad 0.191^{***} \qquad 0.53^{***} \qquad 0.53^{***}$ $(0.044) \qquad (0.119) \qquad (0.118)$ $1\{s=280\} \qquad 0.665^{***} \qquad 1.795^{***} \qquad 1.795^{***}$ $(0.058) \qquad (0.126) \qquad (0.125)$ $1\{s=320\} \qquad 0.475^{***} \qquad 1.293^{***} \qquad 1.293^{***}$ $(0.053) \qquad (0.124) \qquad (0.123)$ observations		(0.059)	(0.185)	(0.183)
$1\{\rho=0.2\} \qquad -0.276^{***} \qquad -0.756^{***} \qquad -0.756^{***} \\ (0.051) \qquad (0.135) \qquad (0.133) \\ 1\{\rho=0.3\} \qquad -0.333^{***} \qquad -0.915^{***} \qquad -0.915^{***} \\ (0.059) \qquad (0.156) \qquad (0.155) \\ 1\{\rho=0.4\} \qquad -0.254^{***} \qquad -0.688^{***} \qquad -0.688^{***} \\ (0.061) \qquad (0.166) \qquad (0.164) \\ 1\{\rho=0.5\} \qquad -0.193^{**} \qquad -0.516^{**} \qquad -0.516^{**} \\ (0.071) \qquad (0.194) \qquad (0.192) \\ 1\{\rho=0.6\} \qquad -0.468^{***} \qquad -1.281^{***} \qquad -1.281^{***} \\ (0.081) \qquad (0.22) \qquad (0.218) \\ 1\{s=240\} \qquad 0.191^{***} \qquad 0.53^{***} \qquad 0.53^{***} \\ (0.044) \qquad (0.119) \qquad (0.118) \\ 1\{s=280\} \qquad 0.665^{***} \qquad 1.795^{***} \qquad 1.795^{***} \\ (0.058) \qquad (0.126) \qquad (0.125) \\ 1\{s=320\} \qquad 0.475^{***} \qquad 1.293^{***} \qquad 1.293^{***} \\ (0.053) \qquad (0.124) \qquad (0.123) \\ 0bservations \qquad 7056 \qquad 4416 \qquad 7056$	$Question \cdot 1\{Group = 1\}$	0.223***	0.535***	0.535***
$ \begin{array}{c} (0.051) & (0.135) & (0.133) \\ 1\{\rho=0.3\} & -0.333^{***} & -0.915^{***} & -0.915^{***} \\ (0.059) & (0.156) & (0.155) \\ 1\{\rho=0.4\} & -0.254^{***} & -0.688^{***} & -0.688^{***} \\ (0.061) & (0.166) & (0.164) \\ 1\{\rho=0.5\} & -0.193^{**} & -0.516^{**} & -0.516^{**} \\ (0.071) & (0.194) & (0.192) \\ 1\{\rho=0.6\} & -0.468^{***} & -1.281^{***} & -1.281^{***} \\ (0.081) & (0.22) & (0.218) \\ 1\{s=240\} & 0.191^{***} & 0.53^{***} & 0.53^{***} \\ (0.044) & (0.119) & (0.118) \\ 1\{s=280\} & 0.665^{***} & 1.795^{***} & 1.795^{***} \\ (0.058) & (0.126) & (0.125) \\ 1\{s=320\} & 0.475^{***} & 1.293^{***} & 1.293^{***} \\ (0.053) & (0.124) & (0.123) \\ \end{array} $ observations		(0.067)	(0.162)	(0.161)
$1\{\rho=0.3\} \qquad -0.333^{***} \qquad -0.915^{***} \qquad -0.915^{***} \\ (0.059) \qquad (0.156) \qquad (0.155) \\ 1\{\rho=0.4\} \qquad -0.254^{***} \qquad -0.688^{***} \qquad -0.688^{***} \\ (0.061) \qquad (0.166) \qquad (0.164) \\ 1\{\rho=0.5\} \qquad -0.193^{**} \qquad -0.516^{**} \qquad -0.516^{**} \\ (0.071) \qquad (0.194) \qquad (0.192) \\ 1\{\rho=0.6\} \qquad -0.468^{***} \qquad -1.281^{***} \qquad -1.281^{***} \\ (0.081) \qquad (0.22) \qquad (0.218) \\ 1\{s=240\} \qquad 0.191^{***} \qquad 0.53^{***} \qquad 0.53^{***} \\ (0.044) \qquad (0.119) \qquad (0.118) \\ 1\{s=280\} \qquad 0.665^{***} \qquad 1.795^{***} \qquad 1.795^{***} \\ (0.058) \qquad (0.126) \qquad (0.125) \\ 1\{s=320\} \qquad 0.475^{***} \qquad 1.293^{***} \qquad 1.293^{***} \\ (0.053) \qquad (0.124) \qquad (0.123) \\ \text{observations} \qquad 7056 \qquad 4416 \qquad 7056$	$1\{\rho=0.2\}$	-0.276***	-0.756***	-0.756***
$(0.059) \qquad (0.156) \qquad (0.155)$ $1\{\rho = 0.4\} \qquad -0.254^{***} \qquad -0.688^{***} \qquad -0.688^{***}$ $(0.061) \qquad (0.166) \qquad (0.164)$ $1\{\rho = 0.5\} \qquad -0.193^{**} \qquad -0.516^{**} \qquad -0.516^{**}$ $(0.071) \qquad (0.194) \qquad (0.192)$ $1\{\rho = 0.6\} \qquad -0.468^{***} \qquad -1.281^{***} \qquad -1.281^{***}$ $(0.081) \qquad (0.22) \qquad (0.218)$ $1\{s = 240\} \qquad 0.191^{***} \qquad 0.53^{***} \qquad 0.53^{***}$ $(0.044) \qquad (0.119) \qquad (0.118)$ $1\{s = 280\} \qquad 0.665^{***} \qquad 1.795^{***} \qquad 1.795^{***}$ $(0.058) \qquad (0.126) \qquad (0.125)$ $1\{s = 320\} \qquad 0.475^{***} \qquad 1.293^{***} \qquad 1.293^{***}$ $(0.053) \qquad (0.124) \qquad (0.123)$ observations		(0.051)	(0.135)	(0.133)
$1\{\rho = 0.4\} \qquad -0.254^{***} \qquad -0.688^{***} \qquad -0.688^{***}$ $(0.061) \qquad (0.166) \qquad (0.164)$ $1\{\rho = 0.5\} \qquad -0.193^{**} \qquad -0.516^{**} \qquad -0.516^{**}$ $(0.071) \qquad (0.194) \qquad (0.192)$ $1\{\rho = 0.6\} \qquad -0.468^{***} \qquad -1.281^{***} \qquad -1.281^{***}$ $(0.081) \qquad (0.22) \qquad (0.218)$ $1\{s = 240\} \qquad 0.191^{***} \qquad 0.53^{***} \qquad 0.53^{***}$ $(0.044) \qquad (0.119) \qquad (0.118)$ $1\{s = 280\} \qquad 0.665^{***} \qquad 1.795^{***} \qquad 1.795^{***}$ $(0.058) \qquad (0.126) \qquad (0.125)$ $1\{s = 320\} \qquad 0.475^{***} \qquad 1.293^{***} \qquad 1.293^{***}$ $(0.053) \qquad (0.124) \qquad (0.123)$ observations	$1\{\rho=0.3\}$	-0.333***	-0.915***	-0.915***
$(0.061) \qquad (0.166) \qquad (0.164)$ $1\{\rho = 0.5\} \qquad -0.193^{**} \qquad -0.516^{**} \qquad -0.516^{**}$ $(0.071) \qquad (0.194) \qquad (0.192)$ $1\{\rho = 0.6\} \qquad -0.468^{***} \qquad -1.281^{***} \qquad -1.281^{***}$ $(0.081) \qquad (0.22) \qquad (0.218)$ $1\{s = 240\} \qquad 0.191^{***} \qquad 0.53^{***} \qquad 0.53^{***}$ $(0.044) \qquad (0.119) \qquad (0.118)$ $1\{s = 280\} \qquad 0.665^{***} \qquad 1.795^{***} \qquad 1.795^{***}$ $(0.058) \qquad (0.126) \qquad (0.125)$ $1\{s = 320\} \qquad 0.475^{***} \qquad 1.293^{***} \qquad 1.293^{***}$ $(0.053) \qquad (0.124) \qquad (0.123)$ observations		(0.059)	(0.156)	(0.155)
$1\{\rho = 0.5\} \qquad -0.193^{**} \qquad -0.516^{**} \qquad -0.516^{**} \\ (0.071) \qquad (0.194) \qquad (0.192) \\ 1\{\rho = 0.6\} \qquad -0.468^{***} \qquad -1.281^{***} \qquad -1.281^{***} \\ (0.081) \qquad (0.22) \qquad (0.218) \\ 1\{s = 240\} \qquad 0.191^{***} \qquad 0.53^{***} \qquad 0.53^{***} \\ (0.044) \qquad (0.119) \qquad (0.118) \\ 1\{s = 280\} \qquad 0.665^{***} \qquad 1.795^{***} \qquad 1.795^{***} \\ (0.058) \qquad (0.126) \qquad (0.125) \\ 1\{s = 320\} \qquad 0.475^{***} \qquad 1.293^{***} \qquad 1.293^{***} \\ (0.053) \qquad (0.124) \qquad (0.123) \\ \text{observations} \qquad 7056 \qquad 4416 \qquad 7056$	$1\{\rho=0.4\}$	-0.254***	-0.688***	-0.688***
		(0.061)	(0.166)	(0.164)
$1\{\rho = 0.6\} \qquad -0.468^{***} \qquad -1.281^{***} \qquad -1.281^{***}$ $(0.081) \qquad (0.22) \qquad (0.218)$ $1\{s = 240\} \qquad 0.191^{***} \qquad 0.53^{***} \qquad 0.53^{***}$ $(0.044) \qquad (0.119) \qquad (0.118)$ $1\{s = 280\} \qquad 0.665^{***} \qquad 1.795^{***} \qquad 1.795^{***}$ $(0.058) \qquad (0.126) \qquad (0.125)$ $1\{s = 320\} \qquad 0.475^{***} \qquad 1.293^{***} \qquad 1.293^{***}$ $(0.053) \qquad (0.124) \qquad (0.123)$ observations $7056 \qquad 4416 \qquad 7056$	$1\{\rho=0.5\}$	-0.193**	-0.516**	-0.516**
		(0.071)	(0.194)	(0.192)
$1\{s = 240\} \qquad 0.191^{***} \qquad 0.53^{***} \qquad 0.53^{***} $ $(0.044) \qquad (0.119) \qquad (0.118)$ $1\{s = 280\} \qquad 0.665^{***} \qquad 1.795^{***} \qquad 1.795^{***}$ $(0.058) \qquad (0.126) \qquad (0.125)$ $1\{s = 320\} \qquad 0.475^{***} \qquad 1.293^{***} \qquad 1.293^{***}$ $(0.053) \qquad (0.124) \qquad (0.123)$ observations $7056 \qquad 4416 \qquad 7056$	$1\{\rho=0.6\}$	-0.468***	-1.281***	-1.281***
$(0.044) \qquad (0.119) \qquad (0.118)$ $1\{s = 280\} \qquad 0.665^{***} \qquad 1.795^{***} \qquad 1.795^{***}$ $(0.058) \qquad (0.126) \qquad (0.125)$ $1\{s = 320\} \qquad 0.475^{***} \qquad 1.293^{***} \qquad 1.293^{***}$ $(0.053) \qquad (0.124) \qquad (0.123)$ observations $7056 \qquad 4416 \qquad 7056$		(0.081)	(0.22)	(0.218)
$1\{s = 280\} \qquad 0.665^{***} \qquad 1.795^{***} \qquad 1.795^{***} $ $(0.058) \qquad (0.126) \qquad (0.125)$ $1\{s = 320\} \qquad 0.475^{***} \qquad 1.293^{***} \qquad 1.293^{***} $ $(0.053) \qquad (0.124) \qquad (0.123)$ observations $7056 \qquad 4416 \qquad 7056$	$1\{s=240\}$	0.191***	0.53***	0.53***
		(0.044)	(0.119)	(0.118)
$1\{s = 320\}$ 0.475^{***} 1.293^{***} 1.293^{***} (0.053) (0.124) (0.123) observations 7056 4416 7056	$1\{s=280\}$	0.665***	1.795***	1.795***
(0.053) (0.124) (0.123) observations 7056 4416 7056		(0.058)	(0.126)	(0.125)
observations 7056 4416 7056	$1\{s=320\}$	0.475***	1.293***	1.293***
		(0.053)	(0.124)	(0.123)
aic 9621.97 4294.947 4303.619	observations	7056	4416	7056
	aic	9621.97	4294.947	4303.619

Note: * p < 0.05, ** p < 0.01, *** p < 0.001. Standard errors are clustered at the subject level and are reported in the parentheses. The p-values are calculated based on Wald tests. FE denotes fixed effects. Subject-specific dummies are omitted in this table.

Table 2: Regression Results for Count-the-Rabbit Tasks

	(1) Pooled	(2) FE	(3) FE	(4) FE
Group	-0.73*	-4.379***	-4.379***	-0.757
	(0.33)	(1.114)	(1.114)	(0.392)
$Question \cdot 1\{Group = 0\}$	0.574^{*}	1.378*	1.378^{*}	2.005**
	(0.226)	(0.6)	(0.6)	(0.744)
${\it Questsion} \cdot 1 \{{\it Group} = 1\}$	0.062	0.152	0.152	0.145
	(0.318)	(0.368)	(0.368)	(0.344)
$1\{r_2 + r_3 > r_1\}$	7.797***	11.71***	11.71***	6.181***
	(0.377)	(1.091)	(1.091)	(0.552)
$1\{r_2=2\}$	0.106	0.183	0.183	0.217
	(0.274)	(0.378)	(0.378)	(0.393)
$1\{r_2=3\}$	-0.655***	-0.95**	-0.95**	-0.991***
	(0.228)	(0.338)	(0.338)	(0.35)
$1\{r_1=8\}$	0.145	0.192	0.192	0.191
	(0.166)	(0.241)	(0.241)	(0.252)
observations	3504	3504	3504	810
aic	878.752	1100.636	1100.636	583.857

Note: * p < 0.05, *** p < 0.01, **** p < 0.001. Standard errors are clustered at the subject level and are reported in the parentheses. The p-values are calculated based on Wald tests. FE denotes fixed effects. Subject-specific dummies are omitted in this table.

Table 3: The Relationship Between Response Time, Choice and Intervetions

	Intertemporal Choice	Rabbit
Group	-0.706***	-2.438***
	(0.144)	(0.118)
$Question \cdot 1\{Group = 0\}$	-0.102	0.787***
	(0.166)	(0.15)
$Questsion \cdot 1\{Group = 1\}$	0.414***	0.784***
	(0.108)	(0.109)
Choice	0.434	0.499***
	(0.336)	(0.063)
$Choice \times Group$	-0.69*	-1.17***
	(0.3)	(0.199)
$Choice \times Question \cdot 1\{Group = 0\}$	-0.133	-0.122
	(0.233)	(0.214)
$Choice \times Question \cdot 1\{Group = 1\}$	-0.011	0.313*
	(0.207)	(0.153)
observations	4393	3486
aic	18552.742	14236.621
$adj-R^2$	0.378	0.569

Note: * p < 0.05, ** p < 0.01, *** p < 0.001. Both models are estimated through 2SLS method. Standard errors are clustered at the subject level and are reported in the parentheses. The p-values are calculated based on t-tests. Intercept, subject-specific dummies, reward (rabbit) numbers and their interactions with predicted choice are omitted in this table.