

Complex Tax Incentives

ONLINE APPENDIX

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ONLINE APPENDIX B: Additional Tables

Table 6: Summary Statistics of Performance by Treatment

Sample:	Simple Treatment			Complex Treatment		
	Low IQ	High IQ	All	Low IQ	High IQ	All
Mean Earnings / Maximal Earnings	0.80	0.86	0.84	0.60	0.68	0.65
Median Earnings / Maximal Earnings	0.93	1.00	0.98	0.70	0.76	0.73
Fraction who choose payoff-optimal output						
First Round	0.13	0.52	0.34	0.01	0.00	0.01
Second Round	0.24	0.62	0.44	0.00	0.01	0.01
Third Round	0.26	0.52	0.40	0.05	0.03	0.04

Note: See footnote ?? for a definition of the IQ measure.

Here, 'Low IQ' and 'High IQ' refers to individuals below and above the median of the IQ measure, respectively.

Table 7: Baseline Effect of Complexity

Dependent variable:	1 If optimal choice			Distance to optimal choice			Earnings		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1 if CT	-0.37*** (0.05)	-0.37*** (0.05)	-0.39*** (0.04)	14.93*** (2.07)	14.93*** (2.07)	15.87*** (2.06)	-370.39*** (68.59)	-370.26*** (68.68)	-378.96*** (69.14)
1 if Choice Order A-B-C		0.03 (0.03)	0.03 (0.03)		-1.17 (1.59)	-1.13 (1.58)		52.10 (74.99)	46.55 (75.06)
Age			0.00 (0.01)			0.24 (0.46)			-35.76 (27.28)
1 if Female			-0.08*** (0.02)			2.71* (1.51)			-38.51 (73.34)
IQ Measure			0.05*** (0.01)			-2.00*** (0.73)			23.27 (32.23)
Constant	0.39*** (0.05)	0.37*** (0.05)	0.35*** (0.13)	5.14*** (1.86)	5.72*** (2.10)	-1.06 (9.26)	1611.36*** (51.22)	1585.31*** (69.52)	2322.37*** (536.87)
N.Obs.	831	831	831	831	831	831	831	831	831

Notes: OLS and tobit estimates. The dependent variable is, in Columns 1–3, a dummy for choosing the payoff-maximizing output level (OLS); in columns 4–6, the distance to the payoff-maximizing choice (tobit with lower limit at 0); and in Columns 7–9, the earnings from the decision measured in points per round (OLS; 7 points were exchanged into one British pence). Each subject enters the regression three times, standard errors computed by block bootstrap clustered at the subject level are in parentheses. Significance at the 1, 5, and 10 percent level is denoted by ***, **, and *, respectively.

Table 8: Change in output level from previous round
Sample restricted to observations with non-zero change in output level

Dependent variable:

Change in output level from previous round

	(1)	(2)	(3)
1 if CT	2.00 (1.40)	2.00 (1.31)	3.00** (1.45)
1 if Choice Order A-B-C		1.00 (0.92)	1.00 (1.29)
Age			1.00 (0.80)
1 if Female			2.00 (1.44)
IQ Measure			-0.00 (0.84)
Constant	-17.00*** (0.43)	-17.00*** (0.77)	-38.00** (16.54)
N.Obs.	517	517	517

Notes: Quantile (median) regressions. The sample is restricted to observations with a non-zero change in output level from the previous round. The dependent variable is the change in output level from the previous round; the output changes in the second decision of the choice order A-C-B are multiplied by -1 to make them comparable; coming from a payoff-maximizing output level, an output decrease is always optimal. Each subject enters the regression twice, standard errors computed by block bootstrap clustered at the subject level are in parentheses. Significance at the 1, 5, and 10 percent level is denoted by ***, **, and *, respectively.

Table 9: Change in output level from previous round – Interaction of IQ and Treatment

Dependent variable:	Change in output level from previous round			1 if subject chose same output as in previous round		
	(1)	(2)	(3)	(4)	(5)	(6)
1 if CT	5.76*** (1.67)	5.54*** (1.72)	6.44*** (1.67)	0.09*** (0.02)	0.09*** (0.02)	0.09*** (0.02)
IQ Measure	-0.28 (0.35)	-0.00 (0.39)	1.14 (0.93)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.01)
CT * IQ Measure	-3.05* (1.68)	-3.11* (1.74)	-3.91** (1.77)	-0.01 (0.02)	-0.01 (0.02)	-0.01 (0.02)
1 if Choice Order A-B-C		1.00 (1.08)	0.31 (1.48)	-0.02 (0.02)	-0.02 (0.02)	-0.02 (0.02)
Age			1.38** (0.64)			0.00 (0.01)
1 if Female			2.46* (1.47)			-0.02 (0.02)
Constant	-16.69*** (0.38)	-17.00*** (0.96)	-45.52*** (13.26)	0.01 (0.01)	0.02 (0.01)	-0.04 (0.17)
N.Obs.	554	554	554	554	554	554

Notes: Quantile (median) regression (columns 1–3) and OLS estimates (columns 4–6). The dependent variable in columns 1–3 is the change in output level from the previous round; the output changes in the second decision of the choice order A-C-B are multiplied by -1 to make them comparable; coming from a payoff-maximizing output level, an output decrease is always optimal. The dependent variable in columns 4–6 is a dummy equaling 1 if the subject chose the same output as in the previous round. Each subject enters the regression twice, standard errors computed by block bootstrap clustered at the subject level are in parentheses. Significance at the 1, 5, and 10 percent level is denoted by ***, **, and *, respectively.

Table 10: First Round Earnings – Interaction of IQ and Treatment

Dependent variable:			
Earnings in the First Round			
	(1)	(2)	(3)
1 if CT	-272.90*** (93.99)	-272.90*** (93.88)	-276.26*** (94.24)
IQ Measure	176.18* (90.97)	176.24* (91.17)	165.38* (93.15)
CT * IQ Measure	-137.68 (110.16)	-137.73 (110.16)	-135.25 (110.18)
1 if Choice Order A-B-C		2.38 (96.12)	-1.67 (96.49)
Age			-4.56 (25.46)
1 if Female			-91.49 (96.63)
Constant	2942.72*** (76.51)	2941.54*** (95.33)	3082.10*** (504.11)
N.Obs.	277	277	277

Notes: Quantile (median) regressions. The dependent variable are earnings in the first round measured in points (7 points were exchanged into one British pence). Standard errors computed by block bootstrap are in parentheses. Significance at the 1, 5, and 10 percent level is denoted by ***, **, and *, respectively.

ONLINE APPENDIX C: Instructions

[Screen 1]

Thank you for participating in this experiment. For your arrival on time, you will receive £2.50 that will be paid to you at the end of the experiment in addition to all earnings from the experiment. If you use the computer in an improper way you will be excluded from the experiment and from any payment. Please turn off mobile phones now and leave them turned off throughout the experiment. If you have a question during the course of the experiment, please raise your hand and we will come to your place and answer your question in private. Please refrain from communicating with other participants throughout the experiment.

During the experiment you can earn points; points will be converted into pence at a rate of 7 to 1; that means that you receive 1p per 7 points. The sum of all points that you earned will be paid out to you at the end of the experiment.

The experiment consists of four parts in which you will position sliders on the screen and a questionnaire after the main part of the experiment.

Only once the experimenter tells you so, press OK to proceed to the next screen.

[Screen 2]

In the four parts of the experiment, your task will consist of positioning sliders on screens containing 48 sliders. Each slider is initially positioned at 0 and can be moved as far as 100. Each slider has a number to its right showing its current position. You can use the mouse or keyboard (arrow keys) in any way you like to move each slider. You can readjust the position of each slider as many times as you wish.

Your payment depends on the number of sliders positioned at exactly 50. We will call a slider positioned at 50 a “correct slider”. You will always get a piece rate per correct slider but you will also have to pay taxes and/or receive subsidies depending on the number of correct sliders.

Do you have any questions at this point?

Before the main experiments starts, please answer a couple of example questions on the next screens.

Please press OK now to proceed to the next screen.

[Control Question 1]

Consider the following example:

You receive a piece rate of 20 points per correctly positioned slider.

A constant **tax** of 5 points is levied on each slider. That means that for each correct slider, you will have to pay a tax of 5 points.

Please answer the following questions and click OK. If one of your answers turns out to be not correct, please try again or ask the experimenter for help.

- Suppose you had positioned 3 sliders correctly. What is the total amount in piece rates that you would receive for the three sliders together?
- Suppose you had positioned 3 sliders correctly. What amount of taxes do you have to pay for the third slider?
- Suppose you had positioned 3 sliders correctly. What are your net earnings (piece rate – taxes) for the third slider?

[Control Question 2]

Consider the following example:

You receive a piece rate of 20 points per correctly positioned slider.

There is an increasing **tax** per slider. This tax is 2 points for the first slider and goes up by 2 points per additional slider. That is, it implies a tax of 4 points for the second slider, 6 points for the third slider, and so on.

Please answer the following questions and click OK. If one of your answers turns out to be not correct, please try again or ask the experimenter for help.

- Suppose you had positioned 4 sliders correctly. What amount of taxes do you have to pay for the fourth slider?
- Suppose you had positioned 4 sliders correctly. What are your net earnings (piece rate – taxes) for the fourth slider?

[Control Question 3]

Consider the following example:

You receive a piece rate of 20 points per correctly positioned slider.

There is an increasing **subsidy** per slider that you get on top of the piece rate. This subsidy is 2 points for the first slider and goes up by 2 points per slider. That is, it implies a subsidy of 4 points for the second slider, 6 points for the third slider, and so on.

- Suppose you had positioned 4 sliders correctly. What amount of subsidies do you receive for the fourth slider?
- Suppose you had positioned 4 sliders correctly. What are your net earnings (piece rate + subsidies) for the fourth slider?

[Control Question 4]

Consider the following example:

You receive a piece rate of 20 points per correctly positioned slider.

There is an increasing **tax** per slider. This tax is 6 points for the first slider and goes up by 6 points per additional slider. That is, it implies a tax of 12 points for the second slider, 18 points for the third slider, and so on.

- How many sliders should you position correctly to maximize your financial earnings?

Hint: Your payment is maximized if you position sliders correctly up to just before the point at which the taxes per slider are higher than the piece rate.

[Control Question 5]

Please position the three sliders exactly at 50.

[Instructions – Round One]

The main part of the experiment starts now.

In this part of the experiment, you will work on the slider task. You will first learn about the piece rate and the particular taxes and subsidies that are relevant for this stage. You will then decide how many sliders you want to position, taking the level of the piece rates and all taxes/subsidies into account.

You have 10 minutes to read these rules and decide on the number of sliders before the actual slider task begins.

Once you have decided how many sliders you want to position, there is no time constraint for actually positioning the sliders.

You receive a baseline piece rate of **100 points** per slider positioned correctly. But you also have to pay a number of taxes and can receive a number of subsidies depending on the number of sliders positioned correctly. All taxes and subsidies are added together.

Your payment is maximized if you position sliders correctly up to the point at which the taxes per slider are higher than the piece rate plus the potential subsidies.

If you have any questions, please raise your hand. If not, please press OK to see the taxes and subsidies for this stage.

[Tax Rules – Round One (Complex Treatment)]

You receive a constant **subsidy** for each slider positioned correctly. This subsidy remains constant at 7 points per slider.

You receive a **subsidy** for sliders 1 through 10. This subsidy is 20 points for the first slider positioned correctly and decreases by 2 points per additional slider (until slider 10). That is, you receive a subsidy of 18 points for the 2nd slider, 16 points for the 3rd slider, and so on. Thus, the subsidy is zero for the 11th slider and remains at zero for all additional sliders.

There is an increasing **tax** starting at the first slider that applies to all additional sliders. This tax is 0 points for the first slider and goes up by 2 points per slider. That is, it implies a tax of 2 points for the second slider, 4 points for the third slider, and so on.

There is a constant **tax** for the following sliders: 12 through 17; 32 through 37; 48 through 52; 78 through 83. This tax is constant at 5 points per slider positioned correctly for the ranges mentioned above and is zero otherwise. There is another constant tax of 7 points per slider for the sliders 31 through 34. And there is a 20 point tax for each slider 7 through 11.

You receive a **subsidy** of 10 points for the following sliders: 6, 7, 8, 16, 17, 18, 19, 20, 21, 69, and 70. You receive a **subsidy** of 15 points for the sliders 51-53 and a **subsidy** of 20 points for sliders 35-37.

You receive an increasing **subsidy** starting at the 6th slider that applies to all additional sliders. This subsidy does NOT apply to sliders 1 through 5. This subsidy is 2 points for the 6th slider and goes up by 2 points per additional slider. That is, you receive a subsidy of 4 points for the 7th slider, 6 points for the 8th slider, and so on.

There is a constant **tax** of 5 points per slider for all sliders after the 66th slider. That is, this tax is zero for all sliders up to and including the 66th slider, and at 5 points for the 67th slider and all additional sliders.

There is an increasing **tax** starting at the 10th slider that applies to all additional sliders. This tax does NOT apply to sliders 1 through 9. This tax is 2 points for the 10th slider and goes up by 2 points per slider. That is, it implies a tax of 4 points for the 11th slider, 6 points for the 12th slider, and so on.

There is a **tax** of 10 points per slider for the following sliders: 20, 21, 48 , 49, 74, 75, 90, and 91.

[Tax Rules – Round One (Simple Treatment)]

You receive a constant **subsidy** for each slider positioned correctly. This subsidy remains constant at 15 points per slider.

There is an increasing **tax** starting at the first slider that applies to all additional sliders. This tax is 0 points for the first slider and goes up by 2 points per slider. That is, it implies a tax of 2 points for the second slider, 4 points for the third slider, and so on.

[Instructions for Slider Task – Round One]

You have decided to position ____ sliders correctly. You will have to do so on the next screens. The number of sliders you have already positioned and the remaining time are shown on the top of the screen. Once you have positioned ____ sliders correctly, press OK to proceed to the next stage of the experiment.

Note: For a slider to count as “correct slider” it has to be positioned exactly at 50.

If you decided to position more than 48 sliders, please position all 48 sliders on the screen and press OK. Then a second screen will be shown with the remaining sliders.

Please click OK now to start positioning the sliders.

[New Instructions – Round Two]

In the next stage of the experiment, all tax and subsidy rules from the previous stage are still applicable. However, there is an additional rule applicable and this rule also determines your payment.

You have 4 minutes to read these rules and decide on the number of sliders before the actual slider task begins.

Once you have decided how many sliders you want to position, there is no time constraint for actually positioning the sliders.

[New Tax Rules – Round Two]

[ABC] In addition to the previous rules, there is a constant **tax** for each slider. This tax remains constant at 32 points per slider.

[ACB] In addition to the previous rules, there is a constant **tax** for each slider. This tax remains constant at 66 points per slider.

[Instructions for Slider Task – Round Two]

[identical to Instructions for Slider Task – Round One]

[New Instructions – Round Three]

[identical to New Instructions – Round Two]

[New Tax Rules – Round Three]

[ABC] In addition to the previous rules, there is a constant **tax** for each slider. This tax remains constant at 34 points per slider.

[ACB] In addition to the previous rules, there is a constant **subsidy** for each slider. This subsidy remains constant at 34 points per slider.

[Instructions for Slider Task – Round Three]

[identical to Instructions for Slider Task – Round One]

[Instructions Productivity Test]

In this last part of the experiment, you will work on the slider task again. In contrast to before, you do not have to commit in advance to how many sliders you will do.

You will be paid 2 points per slider positioned at exactly 50. **There are no taxes or subsidies in this stage.**

You can work for a maximum of 15 minutes on this task but even if you have time left, you can only do up to 144 sliders and earn the respective piece rates.

Please click OK to start this stage of the experiment.

[Feedback]

The main part of the experiment is now over. Your total earnings from the four stages is ____ points.

We would now like to ask you to fill in a short questionnaire. After the questionnaire, the experiment is over and you will be paid.

[Post-experimental Questionnaire Page 1]

A bat and a ball cost £1.10 in total. The bat costs £1.00 more than the ball. How much does the ball cost (in pennies)?

If it takes 5 machines 5 minutes to make 5 widgets, how long would it take 100 machines to make 100 widgets (in minutes)?

In a lake, there is a patch of lily pads. Every day, the patch doubles in size. If it takes 48 days for the patch to cover the entire lake, how long would it take for the patch to cover half of the lake (in days)?

In a sale, a shop is selling all items at half price. Before the sale, a sofa costs £300. How much will it cost in the sale?

If the chance of getting a disease is 10 per cent, how many people out of 1,000 would be expected to get the disease?

A second hand car dealer is selling a car for £6,000. This is two-thirds of what it cost new. How much did the car cost new?

If 5 people all have the winning numbers in the lottery and the prize is £2 million, how much will each of them get?

Let's say you have £200 in a savings account. The account earns 10 per cent interest per year. How much will you have in the account at the end of two years?

[Questionnaire page 2]

For some of the questions in this questionnaire, you will see a horizontal line featuring six dots below the question. The leftmost and rightmost points are labelled with potential answers; the points in between can be used to gauge your response. Please choose the point on the scale from 1 to 6 that corresponds closest to your answer.

Did you try to calculate the number of sliders that would maximize your points exactly or did you rather guess the answer? (Calculate number exactly; Guessed; Neither)

How strongly do you agree with the following statements (on a scale from 1 to 6)?

“I had the feeling that the first additional rule lowered the number of sliders that would maximize my payment.”

“I had the feeling that the second additional rule lowered the number of sliders that would maximize my payment.”

“I think that I chose the number of sliders that maximized my monetary payoff in the first main round of the slider task (the one without the additional rule).”

“I think that I chose the number of sliders that maximized my monetary payoff in the second main round of the slider task (the one with one additional rule).”

“I think that I chose the number of sliders that maximized my monetary payoff in the third main round of the slider task (the one with two additional rules).”

“In my decisions on the number of sliders, I tried to maximize my monetary payoff given the rules of the experiment. It did not matter to me how strenuous it would be to actually position different numbers of sliders.”

“Figuring out how many sliders I wanted to position was very stressful.”

“I would have needed more time to figure out how many sliders to position.”

“After having decided on the number of sliders, actually positioning the sliders was very stressful.”

[Questionnaire page 3]

How strongly do you agree with the following statement (on a scale from 1 to 6)?

“Most of the decisions I take are gut decisions.”

How old are you?

What is your gender?

What was your GCSE math grade?

Where did you graduate from school? (UK; Europe (non UK) ; Non-european country)

[Questionnaire page 4]

If you are a student, what is your field of studies?

[Questionnaire page 5]

What is your monthly income (in £)? Income refers to all sources of income such as support from parents, wages earned, student loans, etc. Answering this question is voluntary.

How strongly do you agree with the following statements (on a scale from 1 to 6)?

“In general, one can trust people.”

“In today’s world, one cannot rely on anyone but oneself.”

“When dealing with strangers, it is better to be cautious before trusting them.”

How do you rate yourself? Generally speaking, are you willing to take risks or do you try to avoid risks? Please click on one of the buttons on the scale from “not willing to take risks” to “very willing to take risks.”

How many experiments have you participated in at this lab prior to today’s experiment?

We have conducted this experiment with other participants before. Have you heard about this experiment from friends or colleagues prior to participating?

[Questionnaire page 6]

Last question: do you have further comments on the experiment or your decisions?