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Complexity and Distributive Fairness Interact in Affecting Compliance Behavior

Abstract

Filing income tax returns or insurance claims often requires that individuals comply with complex rules to meet their obligations. We present evidence from a laboratory tax experiment suggesting that the effects of complexity on compliance are intrinsically linked to distributive fairness. We find that compliance remains largely unaffected by complexity when income taxes are distributed to a morally justified charity. Conversely, complexity significantly amplifies non-compliance when income taxes appear wasted as they are distributed to a morally dubious charity. Our data further suggest that this non-compliance pattern is facilitated through the ambiguity that evolves from mostly unstrategic filing mistakes.

JEL-Codes: C910, D010, D910, H260.

Keywords: complexity, compliance, distributive fairness, experiment.

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1 Introduction

Compliance decisions are often very complex, requiring that individuals process large amounts of information and rules, and file ample paperwork. Complexity of tax rules and the tax filing process are particularly cumbersome (e.g., Slemrod and Sorum, 1984; Benzarti, 2017), causing inattentive decision making (Abeler and Jaeger, 2015) as well as confusion (Feldman et al., 2016; Taubinsky and Rees-Jones, 2017). Tax payers in the Canadian province of Québec for example need to file up to 43 forms using an instruction guide of more than 100 pages (Vaillancourt et al., 2015). In the United States, the burdens associated with filing taxes have been estimated to cost about 1.2% ($200 billion) of the GDP (Benzarti, 2017).[1]

Governmental officials all over the world have recently started discussing the hypothesis that complexity contributes to the tax gap between tax that is owed and tax that is paid (Government Accountability Office, 2017; Luttmer and Singhal, 2014). While these official reports acknowledge that taxpayers may underclaim benefits, it is still believed that complexity triggers predominantly self-serving non-compliance, whether intended or not. In contrast, inattentive decision making or confusion are more likely to generate random deviations from required levels of compliance. To our knowledge there is no direct evidence of factors responsible for the hypothesis that complexity contributes to self-serving non-compliance.

In this paper we present evidence from a laboratory experiment in Germany suggesting that complexity and compliance are intrinsically linked to distributive fairness. Subjects in our experiment first generate income in a real effort task before being randomly assigned into one of four treatments based on a 2x2 factorial design. This design varies complexity of compliance decisions and distributive fairness. In all treatments, subjects are asked

[1] See Slemrod and Sorum (1984) or Blumenthal and Slemrod (1992) for corresponding estimates obtained using survey data.

to calculate the share of their generated income they should keep as take-home pay, with the residual share to be donated to a designated charity. We vary complexity by manipulating tax forms from the province of Québec (Canada). In SIMPLE treatments, subjects are asked to calculate the share of their generated income they are required to keep by completing a single one page form requiring three data entries. In COMPLEX treatments subjects are required to complete seven forms requiring 34 data entries. All forms (both in SIMPLE and COMPLEX) were calibrated such that subjects who make the correct calculations would be asked to keep exactly half of their generated income, with the remaining half to be donated to their designated charity. We vary distributive fairness by randomly assigning two different existing and certified charities across subjects. The first charity raises funds to facilitate stem-cell donations to newborns with blood cancer. The second charity is a luxury private yacht club located in Germany. Both organizations are certified as charitable organizations under German law, and hence donations to both are tax deductible. Yet, redistributing generated income to the yacht club plausibly triggers a stronger perception that donations to this charity as less morally justified and thus associated with lower distributive fairness. All subjects were asked to keep their share as take-home pay, leaving the remaining share in a closed envelope to be donated after the end of the experiment. There were no risks or penalties for non-compliance, ruling out these considerations from our analysis.

We find that complexity has no significant effect on compliance when taxes are distributed to a morally justified charity. This mirrors results in Dwenger et al. (2016) who found no effects on compliance behavior when simplifying payment of Church taxes. Our results add to this and related findings suggesting a significant share of taxpayers are intrinsically motivated to comply with complex rules when taxes are distributed to a morally justified cause (Abeler et al., 2019). Conversely, complexity is found to have a significant effect on compliance when taxes are distributed to the morally dubious charity.

We also find that, conditional on forms under SIMPLE, subjects keep significantly more of their generated income when taxes are distributed to a morally (more) deserving charity. This effect is consistent with a pure morality effect suggesting how taxes are used matters for compliance. Related non-experimental evidence consistent with this finding is Torgler (2003) who finds that distrust in governments is positively associated with acceptability of tax evasion. Overall, we find a significant interaction effect between complexity and morality – non-compliance is significantly accentuated under COMPLEX when taxes are distributed to a morally dubious charity.

The interaction of complexity and distributive fairness has implications in many areas. To start, officials designing tax policy need to take into account the perception of taxpayers concerning the efficiency and appositeness of government spending. When perceptions are favorable, taxpayers are able and willing to work through complex rules, offering a leverage for elaborate tax policy. Spiegler (2016) surveys a literature in behavioral industrial organization arguing that firms may profit from strategically introducing complex rules at the expense of customers who then have difficulties making correct value comparisons across market alternatives. Examples range from major industries such as insurance, retail banking, or telecommunications to the mundane task of supermarket shopping where the large variety of potential substitutes, nonlinear and frequently changing prices, and incommensurable measurement units complicate choices. This complexity can be explicit, for example, elaborate fee structures employed by retail banks, or long service contracts loaded with impenetrable jargon or implicit as the arcane reimbursement practices of insurance companies. While product complexity is hard to avoid in many cases, it is a common intuition that part of the complexity is in fact strategic, designed by firms to take advantage of consumers. Our results suggest such distributive unfair practices may affect compliance in these industries. Insurees, for example, may withhold or distort information when filing complex reimbursement claims, amplifying moral hazard problems

in insurance markets.

The remainder of this paper is structured as follows. Section 2 presents the experimental design used in the paper. Section 3 presents our main results and discusses the policy implications. Section 4 concludes.

2 Experimental Design

At the beginning of an experimental session, each subject generated income by positioning sliders on their computer screens (Gill and Prowse, 2018). Each correctly positioned slider generated €0.40 for a subject. Subjects positioned the sliders over two rounds (120 seconds per round). In each round, the screen presented 48 sliders and was split in two sections "No. 1-24" and "No. 25-48". Subjects were informed that their final payout from the experiment would be monotonically increasing in the number of correctly positioned sliders, but they were not informed of the exact share of the generated income they would receive as a final payment for the experiment. They worked in isolation from one another at separate computer terminals.

After completing the slider task, all subjects privately received their generated income, written instructions, one envelope containing forms as well as two empty envelopes. Written instructions indicated that they had to calculate the share of their generated income they could keep as payment for the experiment using the forms supplied.[2] They were further instructed to place their shares in the empty envelope labelled "your share", and the remaining shares in the second empty envelope labelled "remaining share". The instructions also indicated that the content of the "remaining share"-envelopes would be donated to a designated charity.[3] Subjects were informed that researchers would only

[2]The full instructions, translated from German, can be found in Appendix A.

[3]An overview of the number of correctly positioned sliders in both rounds was displayed on the computer screen. Screenshots can be found in Appendix B. Each workplace was equipped with a pen, sticky tape, and a calculator. The sticky tape was used to seal all envelopes after shares were allocated.

collect the envelopes labelled "remaining share" after everybody left the room, and that the content of these envelopes would be transferred to the designated charity. Subjects were also instructed to leave behind the forms filled to calculate the respective shares. Forms and content of "remaining share"-envelopes thus contained information to measure rule non-compliance as well as possible calculation mistakes. Risk aversion is ruled out in the above design as subjects faced neither probabilisitc audits nor penalties for non-compliance or mistakes.[4] As a result, form calculations and content of the "remaining share"-envelopes need not match. Moreover, no binding time restrictions were placed on subjects to complete the experiment. Subjects were nevertheless presented a reference time of 900 seconds which was reached by about 5% of subjects. Subjects left the laboratory after answering some socio-economic questions.

The experiment is based on a 2x2 between-subject factorial design, interacting complexity and morality of designated charitable organizations. Forms were either SIMPLE (a one page form with three items to fill) or COMPLEX (seven forms with a total of 34 items to fill). Under COMPLEX, forms also incorporated *if*-conditions and also required subjects to transfer intermediate calculations across the different forms. We utilize abstract formats of the tax forms used in the Canadian province of Québec to operationalize complexity.[5] Forms (under SIMPLE or COMPLEX) were calibrated for the experiment such that subjects who comply and make no calculation mistakes were asked to keep 50% of their generated income as payment for the experiment, with the remaining income to be placed in the "remaining share"-envelope for later distribution to the designated charity. The second treatment dimension varies the designated charitable organization. Half of the subjects were informed that the content of the "remaining share"-envelope would be donated to the *Deutsche Knochenmarkspende* (in English: German Bone Marrow Dona-

[4]We made sure that this was clear to subjects by allowing them to put the "your share"-envelopes in their bags and by telling them that these envelopes must not be opened.

[5]Both a screenshot of the original Québec tax forms and the experimental versions can be found in Appendix C.

tion Registry; hereafter DKMS). The other half of subjects were told contents would be donated to the *Bayrischer Yachtclub* (in English: Bavarian Yacht Club; hereafter BYC). Instructions for subjects presented the mission statement of each organization translated below:

"*The main activity of the DKMS is to improve the healing potential of leukemia and other life-threatening diseases of the blood-forming system by supporting bone marrow donations. One major part of DKMS is the DKMS umbilical cord blood bank, which collects, processes, stores, and mediates umbilical cord blood stem cell donations for newborns. (Information from www.dkms.de)*"

"*The main activity of the BYC is to professionally promote sailing with all its modern features and high standards. In addition, the social life outside the gates of Munich is cultivated. The BYC also has an exquisite restaurant in its Clubcasino at the Lake Starnberg. (Information from www.byc.de)*"

DKMS and the BYC are both classified as charitable organizations ("gemeinnützig") under German tax law, making them eligible for tax-preferred donations. While both organizations are legitimate recipients of donations, donating to DKMS appeals to higher moral standards and high distributive justice, while donations to BYC, an elite organization in Germany, is intended to invoke the idea of wasteful unjustified spending and low distributive justice. In the following section, WASTE will denote treatment specific donations to BYC, while MORAL will denote donations to DKMS. Similarly, SIMPLE and COMPLEX will denote treatment specific form complexity described above.

The experiment was programmed using zTree (Fischbacher, 2007). 320 subjects (80 per treatment cell) were recruited with the help of ORSEE (Greiner, 2015) and participated in 32 sessions of our experiment at the Munich Experimental Laboratory for Economic and Social Sciences (MELESSA) in the summer of 2017. Every session was supervised by the same experimenter. The core socioeconomic variables are balanced across treatments, suggesting successful treatment specific randomization; see Appendix D.

3 Results

3.1 Data

Subjects on average generated €16.86 of income in the slider task (3.88 std. dev., minimum of €0, maximum of €28). The empirical distribution of generated income is similar to what has been reported in other experiments using the same slider task (e.g., Gill and Prowse, 2018; Abeler and Jaeger, 2015). Figure 1 presents the distributions of generated income for each of the 4 treatment groups. Average earned income across treatments are similar, ranging from €16.45 in WASTE/COMPLEX to €17.36 in MORAL/COMPLEX. Distributions are not statistically different, with no pairwise two sample Kolmogorov-Smirnov tests rejecting the null hypothesis at usual significance levels (lowest p-value =

0.172).

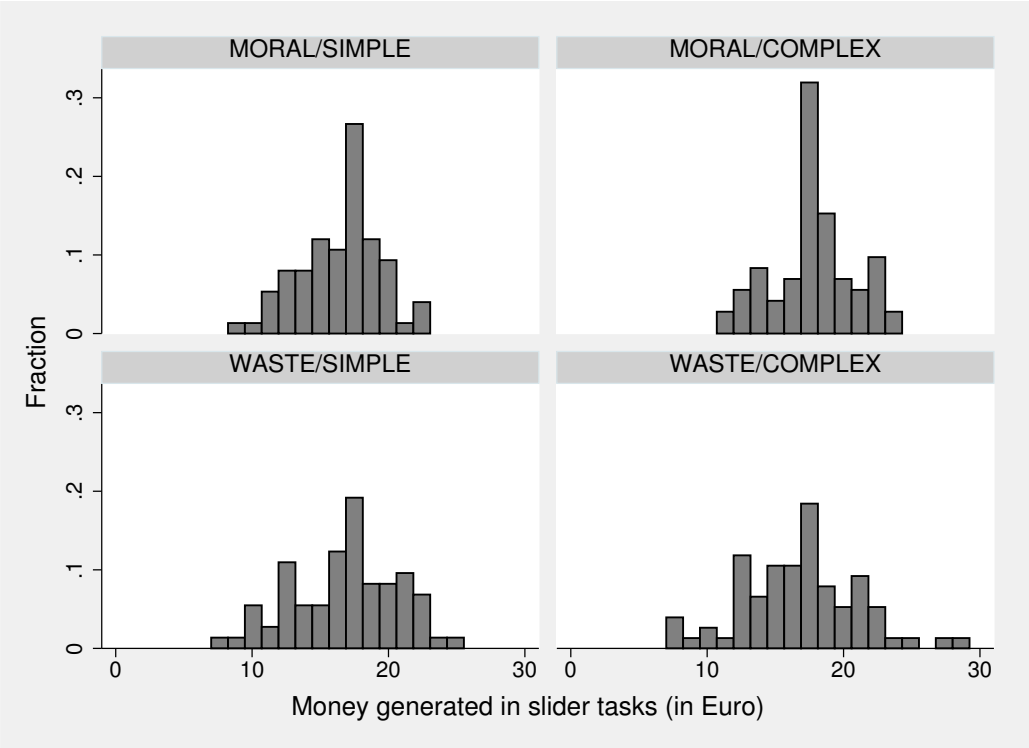

Figure 1: Distribution of income from slider tasks.

296 of the 320 subjects completed all steps of the experiment and hence form our sample of analysis. Of the 24 subjects that are excluded from the analysis, two did not position a single slider correctly, 9 took home the forms, and another 13 left almost all items of the forms empty. These behaviors are not treatment-specific, reflected in the fact that our main results are similar when accounting for selective filing in a Heckman selection model (when appropriate) as shown in Appendix E. The net number of subjects per treatments are 75 in Moral/Simple, 72 in Moral/Complex, 73 in Waste/Simple, and 76 in Waste/Complex.

3.2 Compliance Behavior

Figure 2 presents the compliance behavior on the extensive margin. Compliers, overproviders, and evaders are defined as subjects who respectively donate 50%, more than 50%, or less than 50% of their generated income to their designated charity. We find that the proportion of compliers is significantly higher in MORAL relative to WASTE treatments (Chi2; $p < 0.001$). Pooling over morality dimensions, complexity has a negative effect on the number of compliers (Chi2; $p = 0.055$).[6] Testing for complexity effects separately, we observe significantly fewer compliers due to complexity under WASTE but not under MORAL (Chi2; $p_{\text{WASTE}} = 0.061$; $p_{\text{MORAL}} = 0.463$). These results suggest that subjects are willing to comply and work through form complexity when the designated charitable organization is morally justified. Finally, we observe 4% of subjects being overproviders under MORAL irrespective of form complexity, reflecting that pro-social subjects are not bound to limit their donations to the rule set in the experiment.

Treatment effects on the intensive margin are presented in Figure 3. All graphs plot the corresponding distribution of donations per treatment along with sample averages (vertical lines). Under MORAL, we find small insignificant differences between the distributions of donations across complexity levels (Mann-Whitney-U test (MWU); $p = 0.568$). Effects of complexity emerge when comparing donations under WASTE. There, we find that distributions of donations under both levels of complexity are different (MWU; $p = 0.076$). These non-parametric results identify general differences between distributions of outcomes across treatments but say little about measures of central tendency (e.g. conditional means) across distributions.

Table 1 presents regression analysis of compliance at the intensive margin. We consider two related models. The first model, estimated as OLS in Column (1) and as Tobit in

[6]The effects are similar when looking at the number of evaders (Chi2; $p_{morality} < 0.001$; $p_{complexity} = 0.068$).

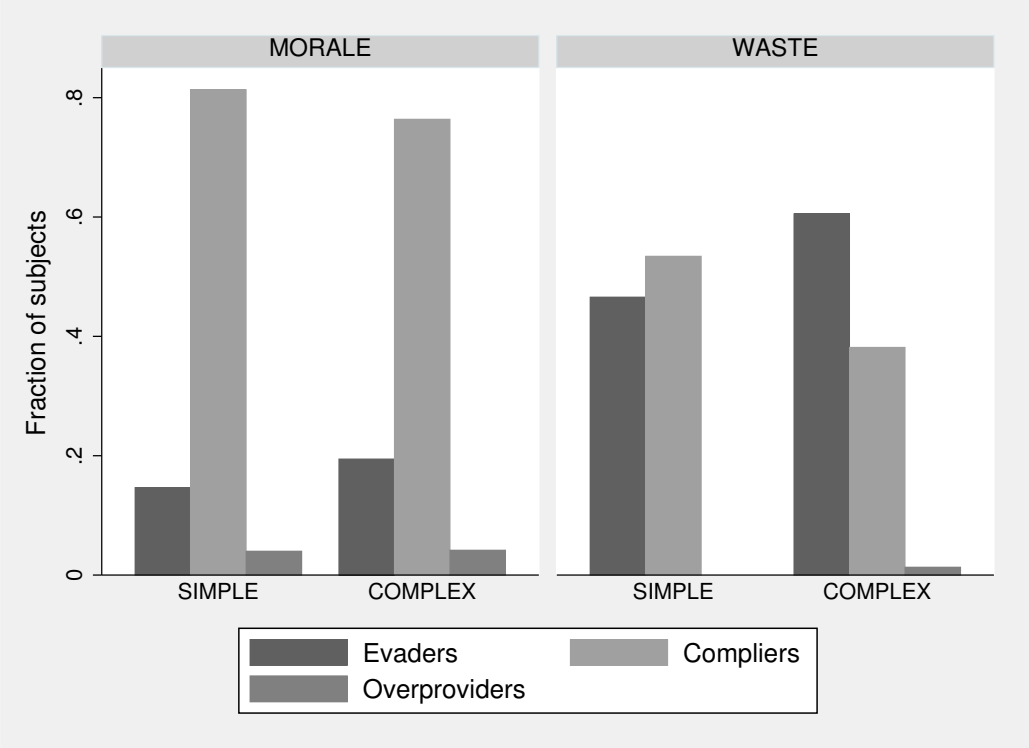

Figure 2: Compliance behavior – extensive margin.

Note: Evaders, compliers, overproviders, and evaders donate respectively 50%, more than 50%, or less than 50% of their generated income to the designated charitable organization.

Column (3), regresses donations (in €) on treatment variables and generated income, taking into account or not censoring of donations at 0, respectively.[7] The second model, estimated as OLS in Column (2) and as Tobit in Column (4), regresses the share of generated income donated on the treatment variables alone.

OLS results suggest that subjects on average donate €2.39 less under Waste/Simple relative to Moral/Simple, a decrease in donations of about 30%. While complexity has a small and insignificant effect under Moral (0.36€), the significant interaction of complexity with Waste suggests that complexity reduced donations by €1.32 (or -18.5%) only when the designated charitable organization was less morally deserving. This finding

[7]Donations are censored from below at 0 while the share of generated income donated is censored from below at 0 and from above at 1, respectively. One should interpret the p-values on the interaction effect in non-linear models with caution as described by Ai and Norton (2003) and Greene (2010).

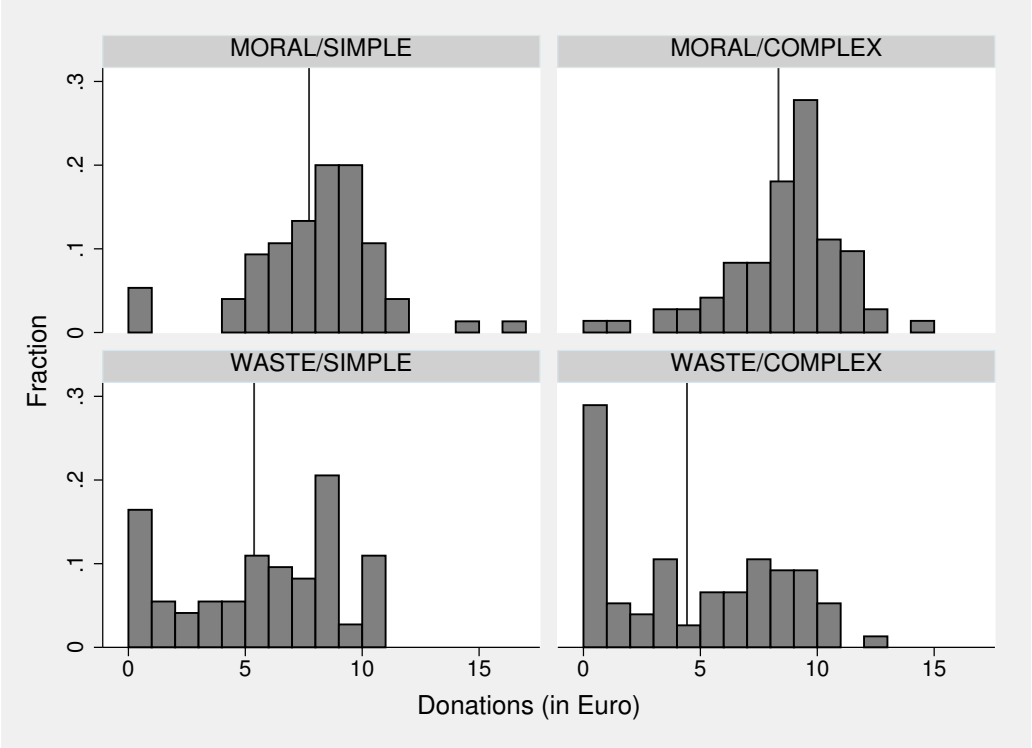

Figure 3: Compliance behavior– intensive margin.

Note: Distributions of money donated to designated charities by treatment. Vertical lines plot average contributions for each treatment.

is robust to using shares of generated income as the dependent variable (Column (2)) or to controlling for censoring of the dependent variable.

These findings are consistent with results on the extensive margin. All suggest that subjects generally donate more to plausibly more deserving charitable organizations, a pure morality effect. The effects of complexity on donations to morally justifiable charitable organizations are minimal – subjects appear to be willing and able to perform complex calculations in order to comply with morally justified donation requests. Notably, complexity reduces donations only when the latter are made to less morally deserving charitable organizations.

	(1) Donation (€)	(2) Donation (%)	(3) Donation (€)	(4) Donation (%)
Waste	-2.394***	-0.133***	-2.575***	-0.145***
	(0.215)	(0.0169)	(0.231)	(0.0188)
Complex	0.360	-0.00142	0.407*	0.00144
	(0.229)	(0.0134)	(0.241)	(0.0141)
Waste × Complex	-1.321***	-0.0549**	-1.556***	-0.0673**
	(0.459)	(0.0261)	(0.539)	(0.0304)
Income	0.189***		0.189**	
	(0.0658)		(0.0746)	
Constant	4.606***	0.468***	4.534***	0.465***
	(1.078)	(0.00944)	(1.224)	(0.0104)
Sigma				
Constant			3.451***	0.206***
			(0.234)	(0.0176)
Observations	296	296	296	296
Model	OLS	OLS	Tobit	Tobit

Table 1: Compliance behavior – intensive margin.

Note: Dependent variable in columns (1) and (2) is the amount and share of generated income donated to the designated charity. Here, estimation results do not take into account the censoring of the data. In the last two columns, censoring is taken into account. Clustered standard errors (session level) in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

3.3 Mistakes

261 subjects out of 296 (88%) correctly indicated on their forms that they should donate 50% of their generated income. Figure 4 breaks down by treatment the proportion of subjects incorrectly reporting the share of generated earnings they should donate. We find that this proportion is 7% under Moral/Simple and increases to 18% under Waste/Complex. Inaccuracies appear to be higher under Waste than Moral for both levels of form complexity.

Accurate reporting on forms does not automatically lead to compliance, as subjects

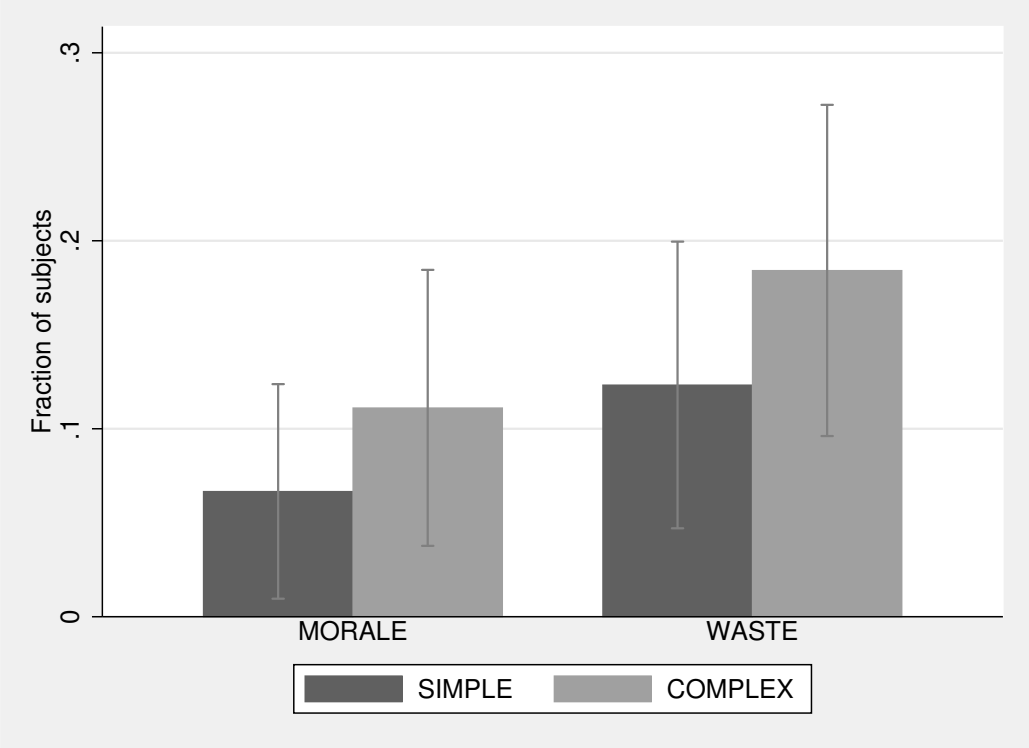

Figure 4: Proportion of subjects inaccurately reporting the share of generated earnings to be donated by treatments.

who correctly indicated on their forms they should keep half of their generated income could do otherwise and leave the experiment with a different share. Selfish subjects for example may decide to keep more of their income than what is prescribed. Selfishness is directly revealed by subjects themselves in this case given they leave behind a clear proof of their understanding of the rules.

Figure 5 presents by treatment the average share of generated income donated for subjects having inaccuracies on their forms. Overall, we observe that selfishness occurs along with inaccurate reporting; subjects with inaccurate reports donated 14%-points less than accurately reporting subjects (MWU, $p < 0.001$). This pattern appears across all treatments. Admittedly, conditional on forms are complex, we find that inaccurate reporting is not associated with sizeable selfishness when donations are sent to a moral charitable organization – average donations hover near the targeted 50% and are com-

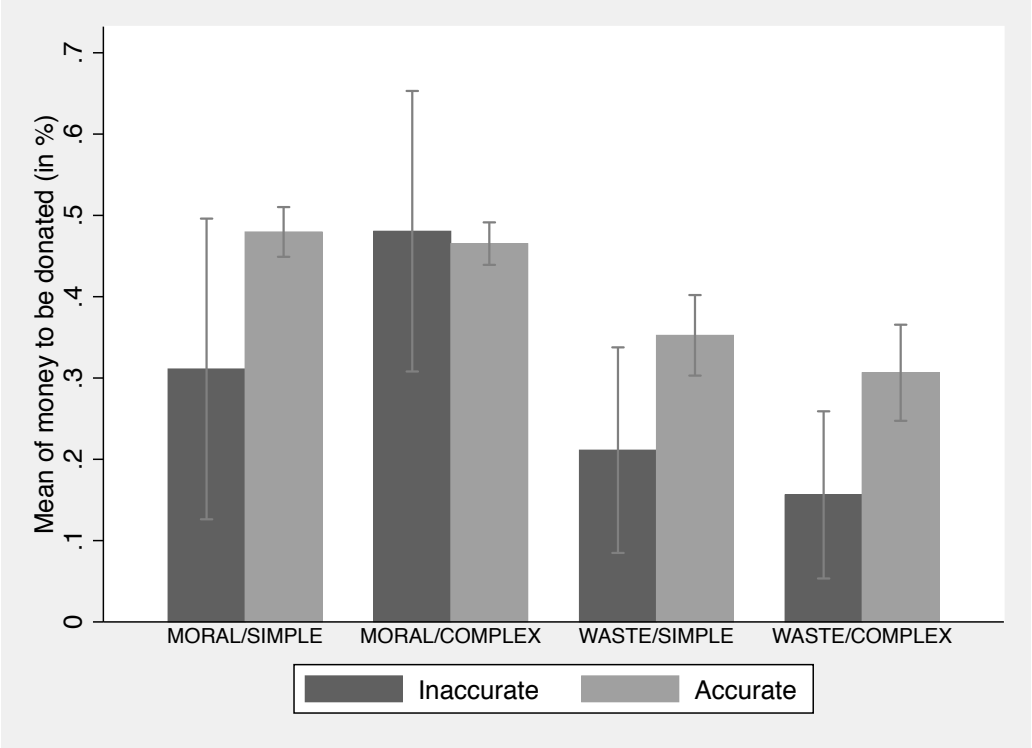

Figure 5: Donations conditional on inaccurate and accurate reports respectively.

parable to average donations for subjects having accurately filled out the forms. This is suggestive evidence for the idea that form complexity per se did not lead to systematic deviations of donations from the prescribed rule. A different reporting pattern emerges under Waste/Complex where average donations of subjects with reporting inaccuracies are significantly lower relative to subjects without reporting inaccuracies. Moreover, conditional on reporting inaccuracies, we find that subjects donate significantly less under Waste/Complex relative to Moral/Complex (MWU, $p = 0.002$).

An important question that arises from these observations is whether subjects willingly report self-serving inaccuracies to facilitate non-compliance. Figure 6 plots the shares to be donated as well as the shares kept by subjects as they have been reported on the forms. We see no evidence of self-serving mistakes from this figure as one would expect the reports to be biased favoring the share kept by the subject (or inversely discriminating against

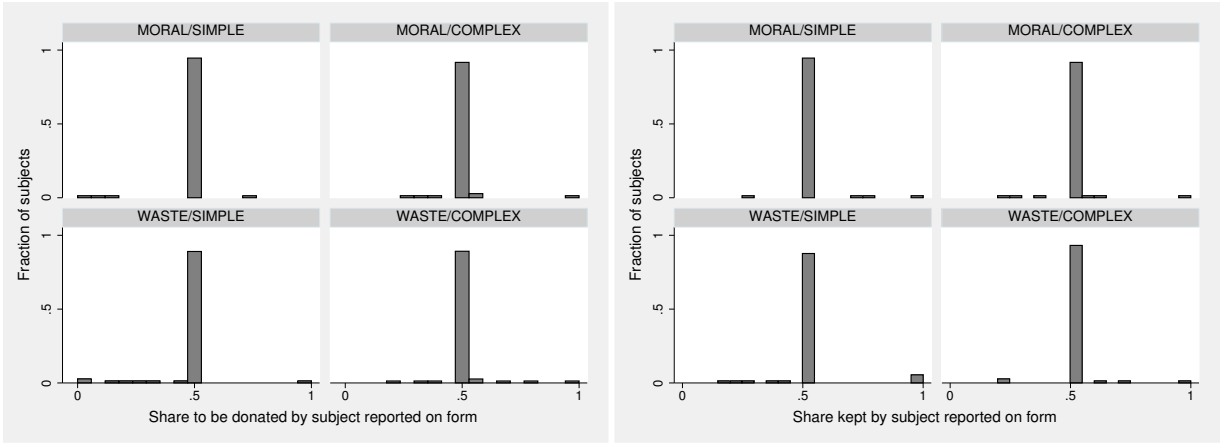

Figure 6: Histograms of reported shares to be donated (left) and kept by subjects (right) for all treatments.

Note: Subjects that reported shares higher than 100% are not reflected in the histograms. This includes three subjects in the left and four subjects in the right figure.

donating money to one of the charities). However, it should be noted that strategically creating self-serving mistakes in our setting is costly as it would require, essentially, the subject to work backward through our forms to slip in a convenient mistake at some point. Hence, our reading of the data is that subjects in all treatments managed to figure out how much to donate given their private preferences. If calculating the prescribed compliance level did not work out smoothly and left subjects with ambiguity about the rule, they were able to self-servingly interpret the ambiguity.

3.4 Decision time

We examine decision times to further substantiate the behavioral mechanisms underlying our results. In our design, subjects read the written instructions together before being allowed to open envelopes that included their forms and the instructions related to calculating the shares and the donation procedures. Decision times were measured from that point onwards. Subjects were shown the results from their slider tasks in order to allow them to fill out the forms correctly. We stop the time measurement when the en-

velopes have been sealed and the subjects end this part of the experiment by clicking on the respective button. Figure 7 presents the distributions of decision times in all four treatments, where horizontal axes measure decision times in seconds.

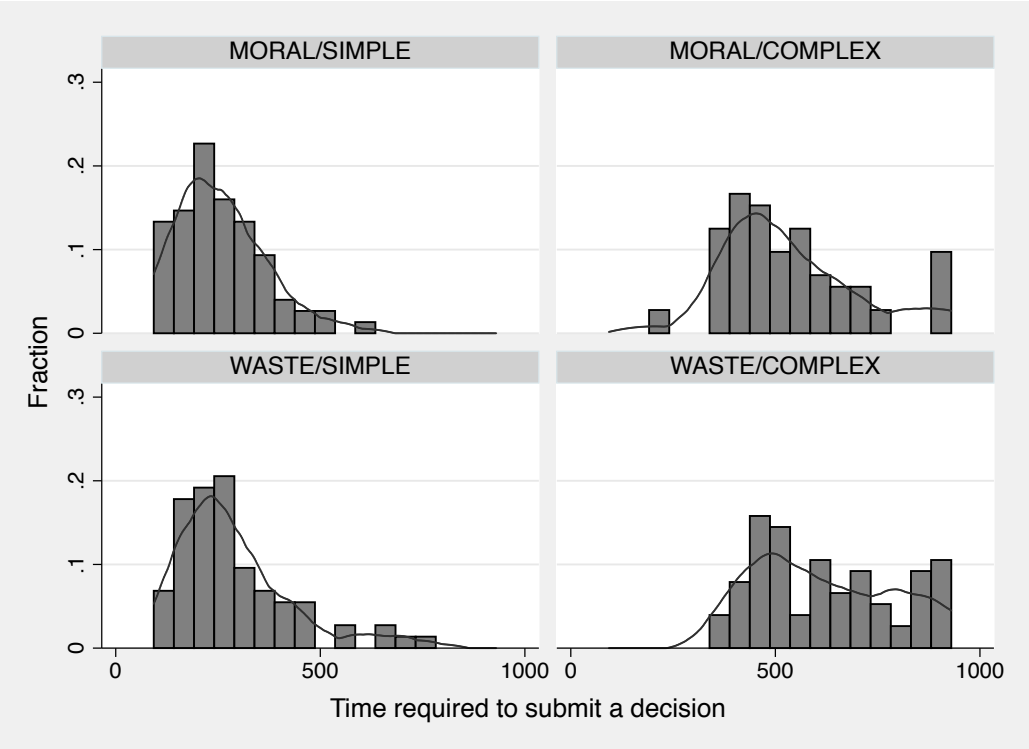

Figure 7: Distributions of decision time in all treatments.

We observe that decision time distributions under Complex treatments are clearly shifted to the right relative to corresponding distributions under Simple. Table 2 presents formal OLS regression analyses of decision times on the main treatment variables of the experiment. We find significantly longer decisions times due to complexity (average increase of 279 seconds) and when the BYC is the recipient (average increase of 32 seconds). There also exists a positive interaction of Waste and Complex of close to 54 seconds, which is significant at the 10% level. Once we control for inaccurate reporting (see Column (2)), the treatment interaction gets more precisely measured and remains robust at about 52 seconds. At the same time, not reporting accurately is associated with

a time increase of 141 seconds. As shown in Column (3), albeit not being statistically significant we observe that decisions are quicker in WASTE/COMPLEX when inaccuracies occur as compared to when reporting is accurate.

These observation are in line with our interpretation that filing mistakes induce ambiguity that helps to behave self-servingly. However, subjects do not appear sophisticated enough to strategically manipulate their reports documented on the forms.

	(1)	(2)	(3)
	Time (in seconds)	Time (in seconds)	Time (in seconds)
WASTE	31.84*	23.85	12.30
	(17.24)	(14.61)	(19.03)
COMPLEX	279.4***	273.16***	267.3***
	(20.25)	(15.94)	(21.54)
WASTE × COMPLEX	53.99*	51.66**	67.09**
	(28.30)	(24.60)	(30.09)
Inaccurate		141.15***	126.1***
		(32.33)	(35.96)
WASTE= 0 × Inaccurate			-126.5
			(96.93)
COMPLEX= 0 × Inaccurate			-81.30
			(115.6)
(WASTE × COMPLEX)= 0 × Inaccurate			151.5
			(137.6)
Constant	257.3***	247.90***	252.7***
	(13.93)	(13.18)	(16.52)
Observations	296	296	296
Model	OLS	OLS	OLS
R^2	0.535	0.581	0.585

Table 2: Decision times in the experiment across the four treatment variations.

Note: Dependent variable captures decision time of subjects in seconds. Clustered standard errors (session level) in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

3.5 Discussion

Bénabou et al. (2018) develop a model where compliance decisions weight intrinsic duty to

comply against the moral costs of deviating from the compliance rule.[8] They show that decision-makers can alter the informativeness of the signal that an action sends about their pro-social type, and will do so only if it is effective in maintaining self- or social-image. Somewhat in line with the model mechanism, compliance in our experiment is significantly related to moral costs of non-compliance. Subjects appear to justify non-compliance in settings where moral costs are low. This conclusion is reinforced by the fact that calculation mistakes under the same level of complexity do not bias donations in a specific direction when donations are made to a more morally justified charitable organization. However, our subjects did not leave traces behind that could reflect self-serving manipulations of forms as predicted by the model.

In related experiments, Konow (2000) provides evidence on the malleability of fairness perceptions from a set of simple dictator game decisions without relating to complexity as a potential modulating factor. Exley and Kessler (2019) observe that subjects donate less money to a charity when the transferred amount is calculated by, for example, 55+55+55+0 rather than by 55+55+55. When subjects were asked about the result of this sum, they act as if they did not understand how to add a 0 to a sum. However, they have no problem in doing so when the money is split between two charities, i.e. when the tradeoff between money for themselves and money for a charity is eliminated. In contrast to our setting in which the induced complexity was really complex, in Exley and Kessler (2019) it was easier to self-servingly generate mistakes. Exley (2019) uses a related design in which charity performance metrics (in particular the program expense rate) are used by lab participants to construct excuses not to donate. A low program expense rate can be interpreted as the lower perceived distributive fairness that is related to the yacht club versus the cancer charity. Haisley and Weber (2010) show evidence that experimental

[8] Appendix F presents a simple theoretical framework that illustrates how our design enables the identification of justification effects. The model however remains agnostic about the underlying mechanism driving the justification process.

subjects in simple ambiguous dictator games have self-serving beliefs about ambiguity which permits justifications to realize unfair allocations in the game. In our experiment, the strong but unbiased correlation between reporting inaccuracies and donations reflects such justification effect. While selfish behavior in our experiment has been facilitated by filing mistakes, our subjects did not exhibit a tendency to make more self-serving rather than self-hurting mistakes as reported by Leib et al. (2019).

In order to provide more real world context for our lab findings, we exploit data from a representative survey of 1,501 citizens living in the US provided by the PEW Institute. Data contain opinions about tax complexity as well as attitudes towards the fair income share of federal taxes to be paid. We find that 29% of respondents indicating not being bothered by tax complexity report that they pay more than a fair share of their income for taxes. In contrast, more than 50% of respondents indicating being bothered significantly by tax complexity perceive their share of taxes as unfair. This difference remains statistically significant below the 1%-level when controlling for core socio-economic variables (gender, age, income), party preferences, and ideological views.[9] Additional survey evidence from Gallup suggests that about 50% of tax payers in the US perceive their tax payments as wasted money rather than money spent for the public good.[10] This combined evidence suggests that tax complexity may affect attitudes towards tax perception and redistribution, consistent with our experimental findings.

In contrast, charity specific effort costs cannot explain our results as we focus on subjects that fill in all forms completely. In addition, we find no difference across treatments with respect to selective or incomplete fillings (see Appendix E). It is also unlikely that our results are driven by depletion effects that have been shown to increase unethical behavior by reducing self-regulatory resources of experimental subjects (e.g., Mead et al.,

[9]Estimation results are available upon request. Similar tax complexity interactions can be observed for the attitudes towards increases or decreases of the federal budget to assist low income individuals in the US and in the world, respectively.

[10]See https://news.gallup.com/poll/232361/less-half-say-taxes-high.aspx.

2009; Gino et al., 2011). While subjects may have been depleted by filing complex forms, depletion along the moral treatment dimension is unlikely. In addition, longer decision times due to complexity are inconsistent with impulsive decisions that are usually observed in the depletion literature.

4 Conclusion

Tax systems serve to achieve a myriad of social and political goals.[11] Achieving these goals simultaneously often requires complex tax codes and filing procedures for many individuals. In return, complexity imposes costs that should be taken into account to determine effectiveness of tax systems. Costs of complex taxation have mostly been associated with compliance costs (e.g., Benzarti, 2017). We showed that increasing moral costs of non-compliance increases compliance rates. We further documented a significant interaction of morality and complexity effects. In particular, complexity has negative effects on compliance behavior only when moral costs of non-compliance are low. Our data appear consistent with subjects using complexity as a means to justify non-compliance when moral costs are low. Complexity can thus be used to motivate non-compliance and erode the effectiveness of policies which are not perceived as morally justified.

Our data further suggests that subjects exploit ambiguity that evolves from inaccurate filing to justify selfish behavior. This implies that complex forms per se carry a justification potential. We do not detect evidence for subjects generating this wiggle room by themselves through self-serving filing strategies.

[11] See Hettich and Winer (1988) for a model how the intricacies of observed tax systems can be viewed as the outcome of optimizing political and economic behavior in the context of, potentially divergent, goals. Hence, tax structure is a system of related parts in equilibrium, not merely a collection of separate and ill-designed components.

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A Instructions

Introduction

Welcome to an experiment on decision-making behavior!

Thank you for your participation!

During the experiment, you and all other participants are asked to make decisions. Your payout will be determined according to the rules explained below.

Please do not speak with other participants of the experiment from now on. If you have any questions after the instructions or during the experiment, please press the red button on the keyboard in front of you. One of the experimenters will then come to you and answer your questions privately.

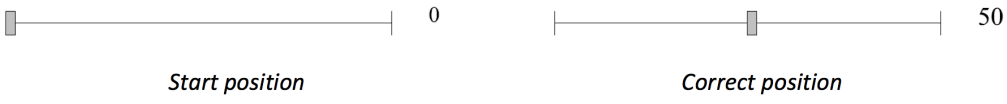
The experiment lasts a maximum of 60 minutes. All your decisions and answers remain anonymous. Neither the experimenters nor the other participants will know which decisions you have made and which participant earns how much.

All payouts from the experiment will be handed over to you privately and in cash.

Slider Task

Your task

In each of the two consecutive rounds (round A and round B), you will see 48 sliders on your screen. Your task is to bring as many of these sliders as possible to position 50:



Use both the computer mouse and the keyboard for positioning. You have 120 seconds time for one round, so to position 48 sliders.

Your payment

Each correctly positioned slider yields €0.40. The sum of all correctly positioned sliders from both rounds gives you the total amount of money that is generated in this task. However, this amount does not make your payout of this experiment. Only a share of the total amount of money is your payout. You will learn how high your share of the money is after we have finished the task. Note, however: the more sliders you position correctly, the higher your payout of the experiment will be.

Practice round

Before you start your task, there will be two practice rounds. You will not receive any money from the two practice rounds, but you can get to know your task.

[After the slider tasks have been processed, the experimenter pays out the money earned in the slider tasks in random order.]

Compliance Decision

Your share

The share of the money you have earned from your task will be determined by the form(s) *[depending on the treatment]* you received along with these instructions. Put your share of the money in the envelope labeled "Your Share".

The remaining share

The remaining share of the money you have earned from your task can also be determined using the form(s) *[depending on the treatment]*. Put the remaining share in the envelope labeled "Remaining Share".

Moral Treatment

Usage of the remaining share money

The remaining share money will be used by the lab researchers. The researchers will do-

nate the money to the German Bone Marrow Donation Registry (DKMS). The main activity of the DKMS is to improve the healing potential of leukemia and other life-threatening diseases of the blood-forming system by supporting bone marrow donations. One major part of DKMS is the DKMS umbilical cord blood bank, which collects, processes, stores and mediates umbilical cord blood stem cell donations for newborns. (Information from www.dkms.de)

DKMS

Wir besiegen Blutkrebs.

Waste Treatment

Usage of the remaining share of the money

The remaining share money will be used by the lab researchers. The researchers will donate the money to the Bavarian Yacht Club (BYC). The main activity of the BYC is to professionally promote sailing with all its modern features and high standards. In addition, the social life outside the gates of Munich is cultivated. The BYC also has an exquisite restaurant in its Clubcasino at the Starnberger Lake. (Information from www.byc.de)

The remaining amount of money will be donated by Marvin Deversi, a member of the Chair of Behavioral Economics and Experimental Economic Research of LMU Munich, on behalf of Prof. Dr. Florian Englmaier, head of the Chair of Organizational Economics at LMU Munich, to the BYC/the DKMS. The verifying documents for the total amount

of donations, including the time of today's experiment, will be posted on the White Board in front of the MELESSA laboratory in the week of April 17, 2017 to April 21, 2017. We will not post personal data.

End

Seal both envelopes using the sticky tape and then click "Quit Part I" to finish this part of the experiment. You must not open any of the two envelopes during this experiment. All your decisions remain anonymous. After the experiment is over, you take the envelope labeled "Your Share" home and leave the envelope labeled "Remaining Share" on your table. The experimenter will collect the remaining envelopes only after every participant has left the room.

As soon as you click on "Next", your earnings summary from your task will be displayed again on the screen and you will be able to start calculating your and the remaining share.

B Example screens

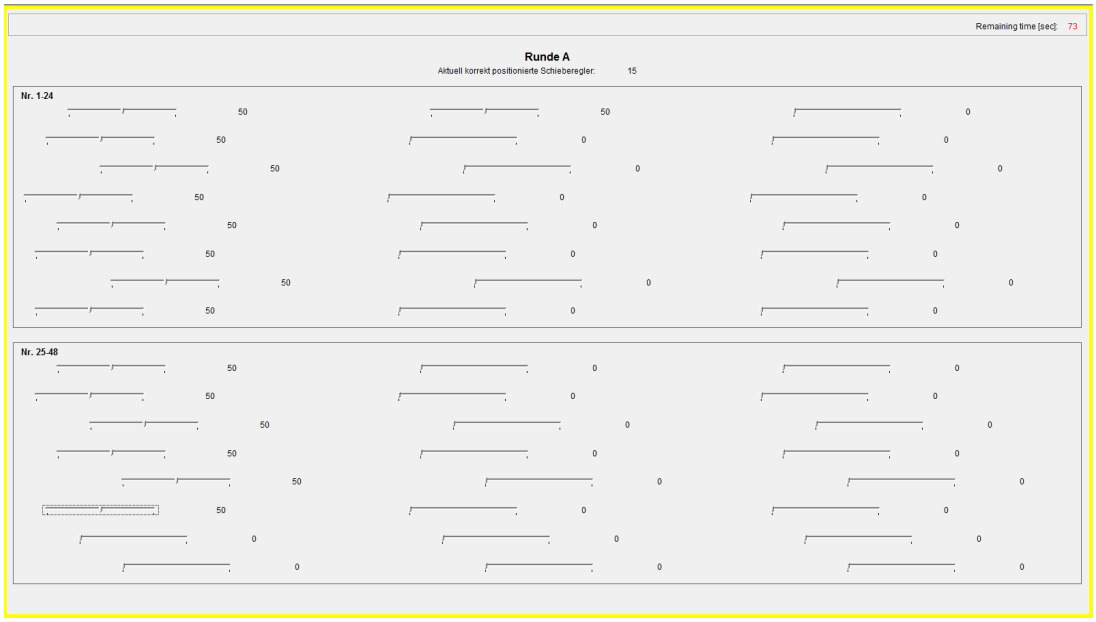


Figure A.1: First round of slider tasks.

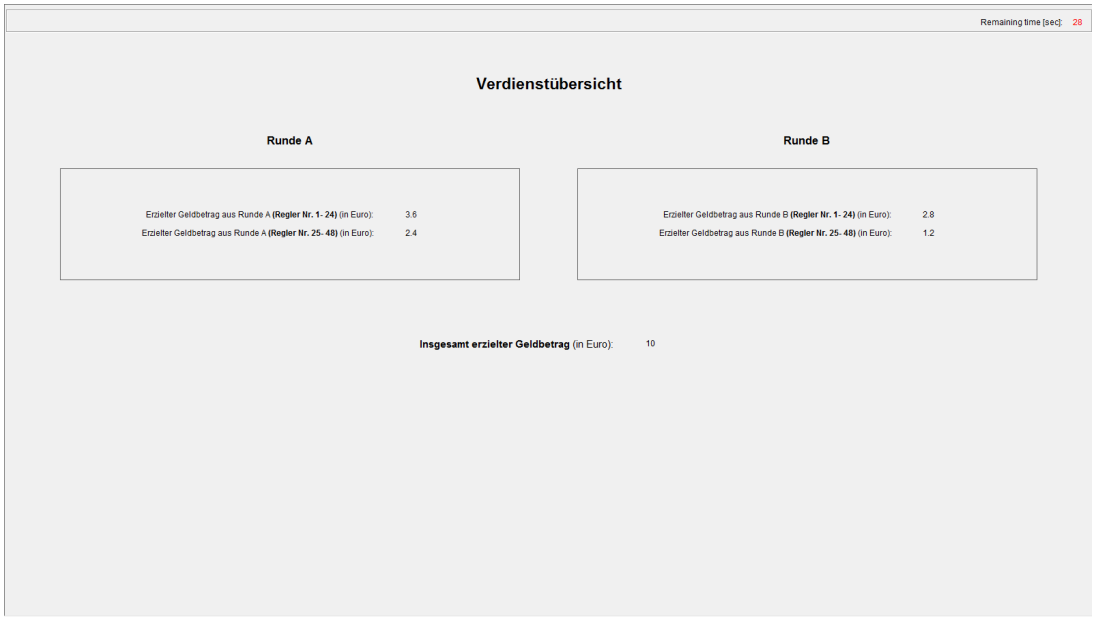
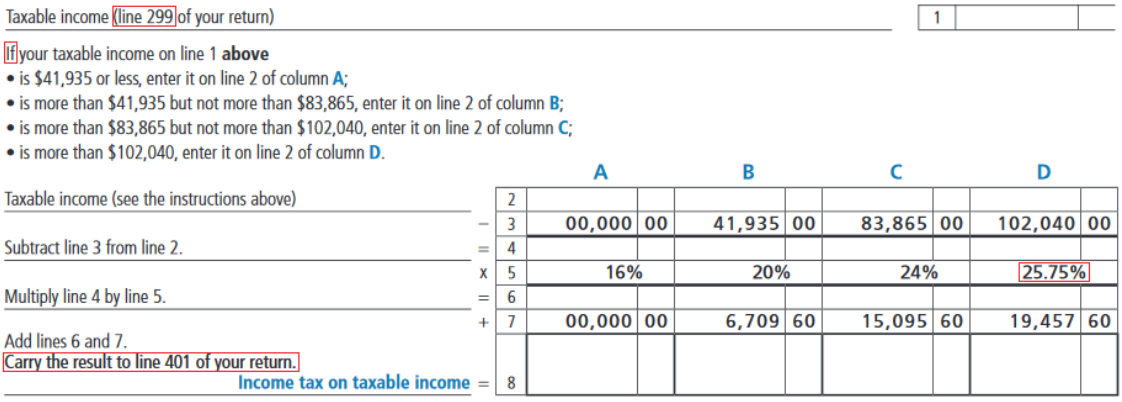


Figure A.2: Overview of correctly positioned sliders.

C Forms



Taxable income (line 299 of your return) | 1

If your taxable income on line 1 **above**
- is $41,935 or less, enter it on line 2 of column **A**;
- is more than $41,935 but not more than $83,865, enter it on line 2 of column **B**;
- is more than $83,865 but not more than $102,040, enter it on line 2 of column **C**;
- is more than $102,040, enter it on line 2 of column **D**.

			A	B	C	D
Taxable income (see the instructions above)		2				
	−	3	00,000 00	41,935 00	83,865 00	102,040 00
Subtract line 3 from line 2.	=	4				
	x	5	16%	20%	24%	25.75%
Multiply line 4 by line 5.	=	6				
	+	7	00,000 00	6,709 60	15,095 60	19,457 60
Add lines 6 and 7. Carry the result to line 401 of your return. Income tax on taxable income	=	8				

Figure A.3: Example for a complex tax form in Quebéc – showing that tax payers need to conduct complicated multiplications, consider if-conditions, and carry numbers across different forms.

EXAMPLE for SIMPLE

«Sitz»

Form

REMAINING SHARE

Money from slider tasks		1	22
	x		**50%**
Multiply row 1 with 50%.	=	2	//
The remaining share of the money is			

YOUR SHARE

Transfer amount from row 2.	3	//
Your share of the money is		

EXAMPLE for COMPLEX

Seat

Form H

REMAINING SHARE

Transfer amount from row 3 of form A.		1	6
Transfer amount from row 3 of form B.	+	2	5
Add amounts from rows 1 and 2.	=	3	11
Remaining share of the money is			

YOUR SHARE

Transfer amount from row 6 of form A.		4	6
Transfer amount from row 6 of form B.	+	5	5
Add amounts from rows 4 and 5.	=	6	11
Your share of the money is			

Seat

Form A

REMAINING SHARE FROM ROUND A

Transfer amount from row 2 of form A1.		1	2,5
Transfer amount from row 2 of form A2.	+	2	3,5
Add amounts from rows 1 and 2.	=	3	6
Remaining share from round A is			

YOUR SHARE FROM ROUND A

Transfer amount from row 4 of form A1.		4	2,5
Transfer amount from row 4 of form A2.	+	5	3,5
Add amounts from rows 4 and 5.	=	6	6
Your share from round A is			

Seat

Form A1

REMAINING SHARE FROM ROUND A **(sliders no. 1-24)**

Money from your task in round A (sliders no. 1-24)		1	5
	x	**50%**	
Multiply row 1 with 50%.	=	2	2,5
Remaining share from round A is (sliders no. 1-24)			

YOUR SHARE FROM ROUND A **(sliders no. 1-24)**

Transfer amount from row 1.		3	5
	x	**50%**	
Multiply row 3 with 50%.	=	4	2.5
Your share from round A is (sliders no. 1-24)			

Seat

Form A2

REMAINING SHARE FROM ROUND A **(sliders no. 25-48)**

Money from your task in round A (sliders no. 25-48)		1	7
	x		**50%**
Multiply row 1 with 50%.	=	2	3,5
Remaining share from round A is (sliders no. 25-48)			

YOUR SHARE FROM ROUND A **(sliders no. 25-48)**

Transfer amount from row 1.		3	7
	x		**50%**
Multiply row 3 with 50%.	=	4	3.5
Your share from round A is (sliders no. 25-48)			

Seat

Form B

REMAINING SHARE FROM ROUND B

Transfer amount from row 2 of form B1.		1	2
Transfer amount from row 2 of form B2.	+	2	3
Add amounts from rows 1 and 2.	=	3	5
Remaining share from round B is			

YOUR SHARE FROM ROUND B

Transfer amount from row 4 of form B1.		4	2
Transfer amount from row 4 of form B2.	+	5	3
Add amounts from rows 4 and 5.	=	6	5
Your share from round B is			

Seat

Form B1

REMAINING SHARE FROM ROUND B **(sliders no. 1-24)**

Money from your task in round B (sliders no. 1-24)		1	4
	x		**50%**
Multiply row 1 with 50%.	=	2	2
Remaining share from round B is (sliders no. 1-24)			

YOUR SHARE FROM ROUND B **(sliders no. 1-24)**

Transfer amount from row 1.		3	4
	x		**50%**
M Multiply row 3 with 50%.	=	4	2
Your share from round B is (sliders no. 1-24)			

Seat

Form B2

REMAINING SHARE FROM ROUND B **(sliders no. 25-48)**

Money from your task in round B (sliders no. 25-48)		1	6
	x		**50%**
Multiply row 1 with 50%.	=	2	3
Remaining share from round B is (sliders no. 25-48)			

YOUR SHARE FROM ROUND B **(sliders no. 25-48)**

Transfer amount from row 1.		3	6
	x		**50%**
Multiply row 3 with 50%.	=	4	3
Your share from round B is (sliders no. 25-48)			

D Randomization checks

Table A.1 shows that the treatment randomization was mostly successful. There exist significant differences with respect to subjects' lab experience. Table A.2 shows the robustness of our main results when controlling for experience.

Controls	**Moral/ Simple**	**Waste/ Simple**	**Moral/ Complex**	**Waste/ Complex**	**F-test**
Gender	0.63	0.55	0.65	0.59	0.6008
Age	24.59	24.45	23.00	23.90	0.1112
Study	4.05	3.93	4.25	3.67	0.5316
Math score	2.04	2.18	2.18	2.30	0.5016
Monthly income	3.17	3.59	3.71	3.55	0.6880
Experience	2.31	2.45	2.58	2.65	0.0315
Know	0.03	0.07	0.14	0.21	0.3111

Table A.1: Randomization checks on main control variables. *Study* is a variable that described the field of study. *Math score* is the last high-school grade in math that subjects remembered. *Monthly income* describes a category on monthly available income. *Experience* describes how often a subject has taken part in laboratory experiments. *Know* measures how many of the other participants in the laboratory the subject knows.

Table A.2: Robustness Check – Compliance behavior on the intensive margin

	(1) Donation (€)	(2) Donation (%)
Waste	-2.338***	-0.129***
	(0.233)	(0.0178)
Complex	0.455*	0.00677
	(0.236)	(0.0136)
Waste × Complex	-1.339***	-0.0574**
	(0.466)	(0.0267)
Income	0.202***	
	(0.0653)	
Experience	-0.404*	-0.0296**
	(0.210)	(0.0126)
Constant	5.324***	0.537***
	(1.212)	(0.0295)
Observations	296	296
Model	OLS	OLS
R^2	0.251	0.185

Standard errors in parentheses and clustered on session level.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

E Effort to file the forms

Nine out of 320 subjects took their forms home such that we cannot assure whether they faced a moral tradeoff when dividing the money. These subjects could have taken home their forms intentionally or mistakenly by putting them in the wrong envelope. These are three subjects in Moral/Simple, two in Moral/ Complex, four in Waste/Simple, and none in Waste/Complex. This behavior is not specific to the treatments (Fisher Exact Test; $p = 0.260$), hence we do not expect treatment specific effort cost functions or any kind of reference points to drive our observed patterns. For the question at hand, overall, subjects donated around 15% of the generated money.

The group of subjects that intentionally left most forms empty and hence did not face the moral tradeoff comprises of two subjects in Moral/Simple, five in Moral/ Complex, and three subjects in both Waste/Simple and Waste/Complex. Again, this pattern is not treatment specific (Fisher Exact Test; $p = 0.756$). These subjects gave on average 20% of the generated money away.

Overall, both groups spent significantly less money to be donated than the overwhelming majority of subjects that filed every single item (MWU; $p < 0.001$). The distribution of shares given is shown in Figure A.4.

In our main text we view the effort supply decision to fill the forms as given. One may however argue that the effort supply decision represents a selection into our sample of analysis. In order to address this point, we estimate a simple bivariate selection model (also known as Heckman model, see Heckman (1979)). Here, we re-estimate our linear regression model that presents our main interaction effect (see Table 1) by correcting for treatment-specific selection into our sample. Table A.3 shows that the detected effects remain robust. The effect measured using nominal donations slightly increases in level, whereas the respective effect on donation shares decreases slightly.

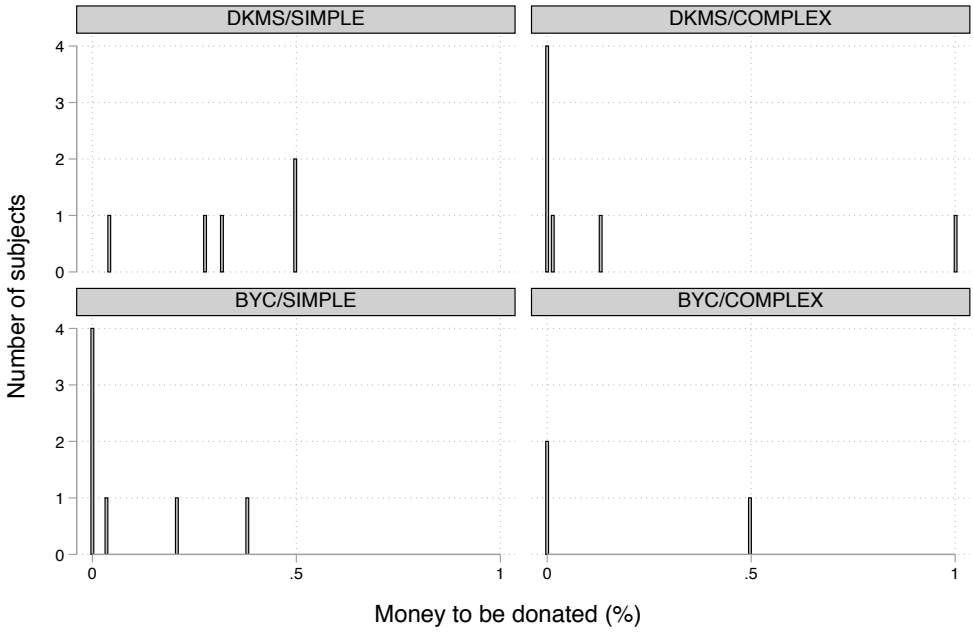


Figure A.4: Money to be donated (%) conditional on forms are not filed

	(1) Donation (€)	(2) Donation (%)
Waste	-2.221***	-0.137***
	(0.286)	(0.0170)
Complex	0.424	-0.00406
	(0.297)	(0.0125)
Waste × Complex	-1.673***	-0.0454*
	(0.544)	(0.0240)
Income	0.191***	
	(0.0711)	
Constant	4.934***	0.459***
	(1.174)	(0.0105)
Selection on I(sample)		
Waste	0.0149	-0.152
	(0.357)	(0.290)
Complex	-0.259	-0.196
	(0.374)	(0.248)
Waste × Complex	0.807*	0.683*
	(0.432)	(0.380)
Income	0.0460	0.0262
	(0.0287)	(0.0391)
Constant	0.523	1.066
	(0.596)	(0.686)
athrho		
Constant	-1.371***	0.408
	(0.205)	(0.287)
lnsigma		
Constant	1.206***	-1.687***
	(0.0528)	(0.0733)
Observations	318	318
LR-Test	<0.001	0.156
Model	Heckman	Heckman

Table A.3: Robustness of compliance behavior on the intensive margin. Notice that two subjects that did not position a single slider correctly are excluded as the slider task was performed before knowing about treatment-specific information. Clustered standard errors (session level) in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

F Identification

In the following, we state our hypotheses where the variables x_A, x_B, x_C, x_D (all ≥ 0) represent the average amount of money to be donated to the recipient party in the respective treatment groups (A: Moral and Simple, B: Moral and Complex, C: Waste and Simple, D: Waste and Complex).

Hypothesis 1: Direct complexity effect

Subjects devote less money to be donated to the other party when the forms are complex rather than simple, such that $(x_A + x_C) - (x_B + x_D) > 0$.

Hypothesis 2: Morality effect

Subjects devote less money to be donated to the BYC compared to the DKMS, such that $(x_A + x_B) - (x_C + x_D) > 0$.

Employing more complex forms induces incentives for non-compliance due to higher cognitive effort costs which should lead to less compliance.[12] We lower the moral costs of non-compliance with donating money to the BYC as compared to the DKMS which is also expected to have a negative effect on compliance.

Our hypotheses can be conceptualized within the following simple framework. A decision maker is assumed to maximize his utility U over the share of money to be donated to the other party $x \in [0, 1]$.

$$\max_{\arg x} U = (1 - x) + F[C(i), m] \cdot (-x) - t \cdot G(x - g). \tag{1}$$

The utility function consists of three parts. First, $(1 - x)$ is the (consumption) utility from the money kept. Second, $F[C(\cdot), m]$ describes the context effects on the agents

[12] Complexity is likely to be a hybrid of decision time, cognitive effort, and depletion that all affect compliance in the same direction.

decision to optimally choose x. Here, $m \in [0,1]$ is the subject's social concerns and $C(\cdot)$ represents complexity as a function of the number of different items to file (i). Thirdly, $G(\cdot)$ represents the duty to comply to the rule g with intensity factor t. The first and second order conditions are, respectively:

$$FOC: \qquad \frac{\partial U}{\partial x} = -F[C(\cdot), m] - t\frac{\partial G(\cdot)}{\partial x} = 0 \tag{2}$$

$$SOC: \qquad \frac{\partial^2 U}{\partial x^2} = -t\frac{\partial^2 G(\cdot)}{\partial x^2} < 0. \tag{3}$$

We easily see that there is a tradeoff between our context variables and the duty to comply to the rule. Using the implicit function theorem we can show that our Hypotheses 1 and 2 can be expressed by $\frac{dx}{dC(\cdot)} = \frac{\frac{\partial F(\cdot)}{\partial C(\cdot)}}{-t\frac{\partial^2 G(\cdot)}{\partial x^2}} < 0$ and $\frac{dx}{dm} = \frac{\frac{\partial F(\cdot)}{\partial m}}{-t\frac{\partial^2 G(\cdot)}{\partial x^2}} < 0$, respectively.

However, the exact treatment response depends on the functional form of $F[C(\cdot), m]$ that we aim to better understand with this paper. We cautiously formulate the following alternative hypothesis on $F[C(\cdot), m]$ when we conjecture that $\frac{\partial^2 F}{\partial C \partial m} < 0$. I.e., the negative interaction effect of complexity and morality gets weaker when moral costs increase. We propose that the behavioral mechanism underlying this relation is that complexity can justify non-compliance. In our simple decision framework, this is reflected by a negative complexity effect that diminishes with moral costs.

Hypothesis 3: Justification effect

The effects of complexity depend on the recipient (i.e., the moral context). In particular, the negative effects of complexity are stronger for the BYC than for the DKMS, such that $[(x_A - x_B) - (x_C - x_D)] < 0$.