Why we Cheat: Experimental Evidence on Tax Compliance *

Raymond M. Duch
raymond.duch@nuffield.ox.ac.uk
Nuffield College
University of Oxford

Hector Solaz
h.solaz@bham.ac.uk
Department of Economics
University of Birmingham

February 19, 2015

*Working Paper. Centre for Experimental Social Sciences, Nuffield College, University of Oxford. February, 2015.

Abstract

Successful redistributive taxation requires that the rich actually pay their taxes. This essay demonstrates that the rich are much less likely than poor to comply with taxation. National survey data indicate that the rich typically have much lower tax morale. Aggregate data suggest that tax compliance is lower in highly unequal societies – possibly because in these countries the tax burden for the rich is relatively high. Is it the case that simply acquiring wealth results in an antipathy towards taxation?

Experiments with real effort tasks, varying tax rates and opportunities to cheat allow us to better understand who complies with redistributive taxes. We test three conjectures: the rich are more greedy and unethical than the poor; there is a universal norm of an unacceptable taxation threshold that ranges between 25 and 30 percent; the rich condition their tax compliance on the relationship between income and ability or effort.

There is overwhelming evidence that subjects who earn more money systematically cheat more – simply being more successful and acquiring more wealth in our experiments results in greedier behaviour. In most cases though all subjects ratchet up their cheating when tax rates approach 30 percent – there is some evidence for a normative threshold of acceptable taxation. The baseline treatment in our experiments was one in which income was directly linked to performance in the real effort task. When income is directly associated with performance, tax compliance by the rich is maximised. In our "status" treatment, some subjects are randomly assigned to a high wage condition and others to a low wage condition – "chance" factors in addition to ability determine income. When luck or status determine income the rich cheat at significantly higher rates and it is high wage earners who are disadvantaged by factors unrelated to ability who are particularly aggressive non-compliers.

1 Why we cheat?

Many classic political economic models assume instrumental rationality will result in heterogeneous preferences for redistribution. The rich are presumed to favour less redistribution and the poor are expected to want more. Meltzer and Richards (1981) and Romer (1975), for example, argue that the amount of redistribution preferred by the median voter will be a function of the distance between his income and the mean income (holding constant the deadweight cost of taxation). If inequality increases while the mean income remains constant, then the median voter will become more supportive of redistribution (assuming all citizens exercise their right to vote). The conventional wisdom expressed in Meltzer-Richards' classic theories of redistribution may be borne out if preferences for redistributional taxation prove to be strongly related to the individual's income relative to average income in the population. Since above-average income earners can expect to be net-contributors, these self-interest models suggest opposition to redistributive policies; and since the poor typically benefit they should support these policies.

These models imply that, in democracies at least, more inequality should be associated with more redistribution. Yet there is considerable evidence based on macro-comparative empirical analyses that there is no association between market income inequality and redistribution or, contrary to the prediction of these models, less market inequality is associated with more redistribution (e.g., Lindert 1996, Moene and Wallerstein 2001*a*, Alesina and Glaeser 2004, and Iversen and Soskice 2009). And many have speculated that these macro-comparative results are driven by individual-level preferences that do not conform to classic theories of redistribution. In some contexts, either the rich are surprisingly other-regarding (Alesina and Ferrara 2005, Dimick, Rueda and Stegmueller 2014) or the poor adopt redistributive policy preferences that are not in their self-interest (Bartels 2005).

Our interest in this essay is understanding this other-regarding reflex of the rich. Can we expect the rich, at least in some circumstances, to be just as, if not more enthusiastic, about redistribution than the poor? Much of the work on this theme has focused on expressed preferences – typically answers to survey questions. We will focus here on preferences for redistribution that are revealed by compliance with redistributive taxation. We contend that the behaviour of rich taxpayers helps us understand why inequality persists and redistribution fails to occur. In virtually all tax jurisdictions there are significant opportunities for shirking.[1] Effective redistribution is unlikely in contexts in which the rich avoid paying taxes. Redistributive tax policies anticipate – or at least should anticipate – the affect of non-compliance on total tax revenues. Hence understanding who cheats, and under what circumstances, helps understand which redistributive tax regimes are sustainable. We explore three different explanations for heterogeneity in tax compliance.

1.1 Self-interest and Greed

If there are opportunities for shirking then all (self-interested) taxpayers should exploit them. Compliance by taxpayers though is dramatically higher than what one would expect given a self-interested model of tax compliance. Our conjecture though is that self-interest or greed will lead the rich to comply less than the poor.

Under most redistributive tax regimes, the net costs to the rich taxpayer of compliance will be higher than those for poor taxpayers. And the self-interested poor clearly have an interest in reinforcing a norm of tax compliance while the self-interested rich have precisely the opposite incentive.

The prevalence for cheating by the rich may go beyond simple self-interest. There are claims that the rich do not simply act out of self-interest but rather they have more

[1]The U.S. Internal Revenue Service audits less than one percent of tax returns and the penalties are relatively light. Audit rates and penalties are even lower in most other countries.

favourable preferences toward greed and demonstrate more unethical behaviour.

> We predict that, given their abundant resources and increased independence, upper-class individuals should demonstrate greater unethical behavior and that one important reason for this tendency is that upper-class individuals hold more favorable attitudes toward greed. (Piff et al. 2012)

Piff et al. (2012) implement seven experiments with convenience samples that support this contention.[2] Under this line of reasoning the rich's antipathy towards tax compliance is based on more favorable attitudes toward greed and a predilection for unethical behavior.

Self-interest or simple unethical and greedy predispositions may result in cheating by the rich. Those with below-average incomes can expect to be net beneficiaries of redistribution, or have less greedy and unethical predispositions, and hence are more likely to comply. This could represent an important de facto constraint on redistribution because the most important source of tax revenues will be those least likely to be "tax compliant".

1.2 A Tax Norm

A tax norm, shared by all taxpayers, may significantly reduce tax compliance when rates of taxation exceed some "normative" threshold. We have some empirical evidence for the notion that the rich and poor share similar preferences for levels of redistributive taxation based on empirical evidence drawn from experimental vignettes administered to large-N samples of the UK population. UK respondents were provided descriptions of different household configurations (for example, single versus married with one child) and incomes (the incomes varied between £8,000 and £80,000). Respondents were asked to indicate what they considered to be the appropriate taxes each of these households should

[2] Although in a subsequent letter to the editor Gregory Francis raised questions about the plausibility of the results (all seven experiments rejecting the null hypothesis) given that the observed Power of the tests in each of these experiments hovered around .5.

pay. Duch and Rueda (2014) report that the preferred rates of taxation were relatively low – on average about 25 per cent. The study found that average tax rates varied relatively little over the households earning a low of £8,000 to a high of £80,000. There was also relatively little variation across types of households, and the income of the respondents had no significant effect on the taxes rates they preferred. Other experimental work suggested a similar lack of variation in preferences: Kai and Morath (2011) find average preferred tax rates, in their mobility treatment, that range between 23 and 31 percent while they are at 20 percent when subjects do not know their income condition.

We conjecture that there may be a taxation norm such that revealed preferences for redistributional taxation are relatively homogeneous in any particular population. Individuals deploy a very simple heuristics when they evaluate redistributive taxation that consists of a fairness principle divorced from redistributive considerations: "What is a reasonable 'tax' for all citizens?" We hypothesise that: 1) this basic reflex ignores the redistributive consequences of taxation; and 2) the heuristic is similar across income categories. The existence of a tax norm suggests that tax compliance is simply a function of the tax rate. Both the rich and the poor cheat equally when taxes rise about a normative threshold. And we speculate that this ranges between 25 and 30 percent.

1.3 Ability versus Status

Neither of the above two conjectures suggest that the rich will comply with redistributive taxation: greed and self-interest favour cheating and a tax norm certainly places an upper limit on the taxes with which the rich will comply. But there is evidence that in some contexts the rich are not antagonistic to redistributive taxation which should be reflected in relatively high tax compliance amongst the rich. Empirical findings from Alesina and Glaeser (2004) and Moene and Wallerstein (2001*b*) question the negative association between income and redistribution preferences. Hence it might be the case that

self-interested motivations can be moderated by other-regarding preferences. The foundation for much of these efforts to understand deviations from classic Meltzer-Richard's assumptions regarding self-interested tax-paying citizens is the pioneering work on altruism, reciprocity and fairness ((Fehr and Schmidt 2006) provide an extensive review of the experimental evidence).

Perceptions of, or beliefs regarding, the fairness of market outcomes likely play a critical role in conditioning other-regarding behaviour and hence in explaining redistributive tax preferences (Benabou and Tirole 2006, Piketty 1995). There are different views though on how fairness of market outcomes might condition the attitudes of the rich toward redistributive taxation. We focus here on perceived distortions in returns to labour. On the one hand potential taxpayers can perceive labour markets as efficiently rewarding individuals according to ability. Alternatively, they might perceive that non-market features of the economy, such as luck or status, play an important role in determining an individual's income.

It may be the case, of course, that the rich exhibit no other-regarding behaviour. If rich potential taxpayers behave in a self-interested fashion they should be indifferent to labour market distortions as long as they benefit from these non-market factors. Tax compliance should not be affected by those who benefit from these labour market distortions. And if they so happen to be disadvantaged by non-market features, such as luck or status, then they should respond negatively which should increase their tax cheating.

Alesina and Angeletos (2005) suggest that the rich do in some cases exhibit other-regarding behaviour related to redistributive taxation. They argue that preferences regarding redistribution are conditioned on beliefs regarding market outcomes, specifically returns to labour inputs. In contexts in which taxpayers believe labour markets are efficient and reward ability they are more averse to government interventions to redistribute income. On the other hand, in contexts where opportunities for wealth and success have

been constrained by non-market factors, such as class differences that have historically played an important role in European economies, redistributive policies have been received much more support.

Alesina and Angeletos (2005) reason that in these contexts there is a recognition that income heterogeneity is due to luck (such as social status) and hence the state ought to undertake significant redistributive programmes. Higher levels of redistribution occur in these contexts because of a recognition on the part of the rich that "altruistic" redistribution is warranted in order to correct for the effect of "luck" on income.

In contexts where luck, or factors unrelated to ability, determine one's income, this altruistic preference for redistribution will be exhibited by those whose "status" results in higher income. For example, this could be one's traditional class status that gives one considerable advantages in the labour market. In these contexts we should see a moderation of the negative relationship between income and tax compliance. High status types in these contexts should exhibit less opposition to redistribution and as a result demonstrate higher levels of tax compliance than would be the case where labour markets rewarded ability.

There is some evidence in the work on tax compliance to suggest that cheating is conditioned on the source of income or wealth (Durham, Manly and Ritsema 2014). Generally, when experiments employ earned income they find a negative relationship between income and compliance (Alm and McKee 2006, Anderhub et al. 2001, Bradly 1987, Becker, Buchner and Sleeking 1987, Trivedi and O.Y.Chung 2006) – consistent with the greed argument. Although Durham, Manly and Ritsema (2014) find that in the case of endowed income the relationship is positive while negative for earned income.

Summary Is there any reason to expect the rich to comply with redistributive taxation? Self-interest should lead the rich to cheat, since they will bear the burden in most redistributive tax regimes, but of course self-interest should lead most taxpayers to cheat.

But they don't. Some argue that the rich are greedy and unethical which leads to much higher cheating amongst the rich. We speculated that there might be widely-held tax norms such that compliance for both the rich and poor occurs up to a particular tax rate but declines precipitously after this threshold. And finally we explored the notion that perceptions of distortions in the labour market might condition tax compliance behaviour. In contexts where factors unrelated to ability play an important role in determining income, high status types might be receptive to redistribution because they acknowledge the role it plays in compensating for these chance factors. We speculated that this might moderate the opposition of the rich to redistribution and hence encourage more compliance amongst those with higher incomes. Alternatively, such distortions might only affect tax compliance, negatively, when these non-market factors such as luck or status are costly for the rich. If the, self-interested, rich are not negatively affected by labour market distortions then their tax compliance behaviour should not be affected.

2 Data on Cheating, Attitudes and Behaviour

2.1 What the Rich and Poor Tell Us

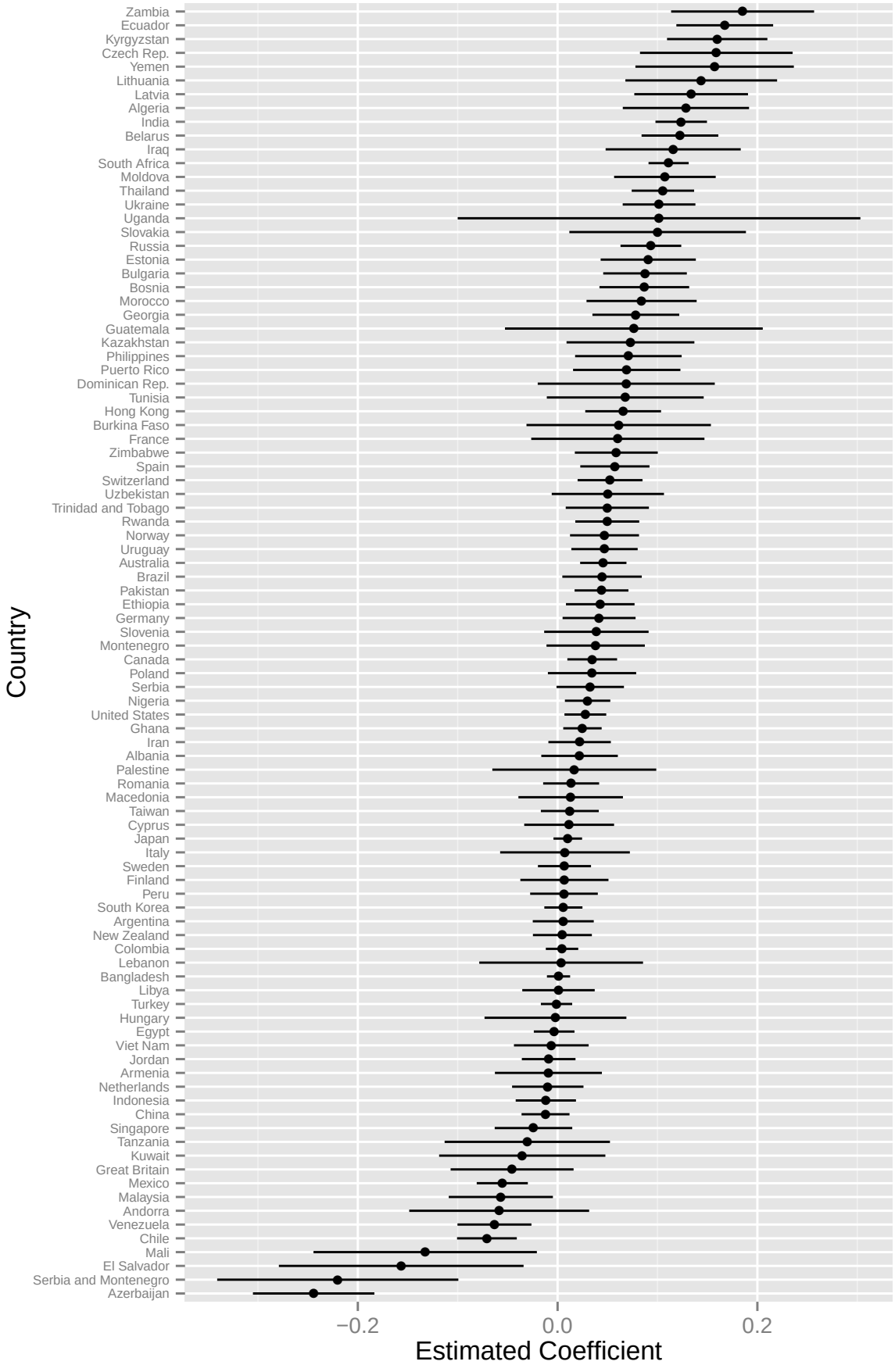
We begin by examining differences in tax morale between the rich and poor. Earlier efforts in this respect include Alesina and Giuliano (2009) and Alm and Torgler (2005) both of whom employ the World Values Survey. Their findings suggest that income is negatively correlated with tax morale. The World Values Survey has asked a similar question about tax compliance in each of its six waves beginning with Wave 1 in 1981-1984 and ending in Wave 6 in 2010-2014. The World Values Study general question assessing tax morale is:

"Please tell me for each of the following statements whether you think it can always be justified, never be justified, or something in between: ..... Cheating on tax if you have

the chance (the ten-point scale assumes a value of 1=never and 10=always)."

Figure 1 presents the results from a simple regression, conducted in each country, of this tax morale question on a normaliszed income scale (ranging from 1 to 10), controlling for education. In about 40 countries spanning six waves of the WVS we find a strong positive correlation between income category and the extent to which respondents accept the notion that cheating on taxes is justified if one has the chance. In only seven of the countries do we find the rich exhibiting higher tax morale than the poor. And in about 30 countries the income coefficient is indistinguishable from zero. These data confirm earlier analyses, such as Alesina and Giuliano (2009) and Alm and Torgler (2005), that tax morale is generally lower amongst the rich than is the case with the poor.

Figure 1: Coefficients on Income Category in World Values Survey Tax Morale Model



2.2 Ability, Status and Tax Compliance

Our expectation is that the lower tax morale of the rich, illustrated in Figure 1, results in their having higher levels of noncompliance with redistributive taxation. But as our third conjecture suggests, compliance may be conditioned on perceived distortions in returns to labour. One possibility is that when income is perceived to be strongly shaped by status and "luck," tax compliance by the rich tends to be higher than in contexts where income is perceived to be strongly correlated with ability. We analyse actual aggregate tax compliance data in order to assess the plausibility of these arguments.

The antipathy of the rich towards taxes suggests a negative relationship between tax compliance and levels of inequality in a society. As inequality rises in a society, redistributive taxation is likely to become more costly for a larger number of the "richer" tax payers. And given the overwhelming evidence of low tax morale amongst the "rich" our expectation is that higher inequality will result in lower tax compliance.

Our analysis of tax avoidance data suggests that there is a strong negative correlation between inequality and tax compliance. We analyzed a sample of 21 OECD countries between 1999 and 2010.[3] Three different measures of tax avoidance are employed in the analysis: the Legal Shadow Economy (LSE), Tax Evasion (TE) and Tax Evasion accounting for Self Employment (TESE) from the Buehn and Schneider (2012) study. Inequality is measured using the OECD-derived GINI coefficient that ranges from 0 (perfect equality) to 100 (maximum inequality).

Table 1 presents linear estimations of the tax avoidance models, with fixed effects at the country level, for the three different variables capturing tax avoidance (LSE, TE and TESE). All models include year dummies to control for time variations. In all six models we see that the GINI coefficient is always positive and significant, meaning that

[3]The countries in the analysis were: Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Ireland, Italy, Korea Republic, Netherlands, Norway, Poland, Slovak Republic, Spain, Sweden, U.K., and U.S.

Table 1: Regression: Tax Evasion and Gini Coefficient

	(1) LSE b/se	(2) LSE b/se	(3) TE b/se	(4) TE b/se	(5) TEwSE b/se	(6) TEwSE b/se
GINI	0.089***	0.050***	0.031***	0.022***	0.068***	0.033***
	(0.016)	(0.017)	(0.006)	(0.007)	(0.011)	(0.011)
GDP per capita		0.000		0.000		0.000
		(0.000)		(0.000)		(0.000)
% Employed		-0.050***		-0.011**		-0.023***
		(0.011)		(0.004)		(0.007)
% Self-employed		0.075***		0.015**		0.077***
		(0.017)		(0.007)		(0.011)
% Below secondary		0.088**		0.008		0.039
		(0.039)		(0.018)		(0.025)
% Secondary		-0.096**		-0.010		-0.038
		(0.040)		(0.019)		(0.025)
% Tertiary		-0.025		-0.026**		-0.029*
		(0.027)		(0.013)		(0.017)
Constant	3.645***	6.562***	0.865***	2.063***	1.184***	2.528***
	(0.562)	(1.173)	(0.214)	(0.522)	(0.382)	(0.753)
N	226	224	226	224	226	224
r2	0.11	0.62	0.04	0.35	0.12	0.73

the more unequal the country is the more taxes are evaded. This result is robust to including standard controls used in the literature (see Richardson (2006) for a review), as can be seen in models 2, 4 and 6. The controls are GDP per capita, percent of the population employed, percent of the population self employed, percent of the population with education below secondary education, percent of the population with secondary education and percent of the population with tertiary education. Clearly, tax evasion increases with inequality.

Our third conjecture suggests that this strong correlation between inequality and tax avoidance will be moderated in contexts where status, as opposed to ability, has an important influence on income. We explore this. Based on the study by Jerrim and Macmillan (2014) we conceptualise "equal opportunities" in a country as the correlation between parental education and labor market earnings. The degree of social mobility in a country is inversely related to the correlation between parental income and labour market earnings. In all 21 countries for which we have data there is a strong and statistically significant association between parental education and labor market earnings with individuals from low parental education backgrounds earning up to 75 percent less than those from high parental education backgrounds. However, the strength of this association varies across countries.

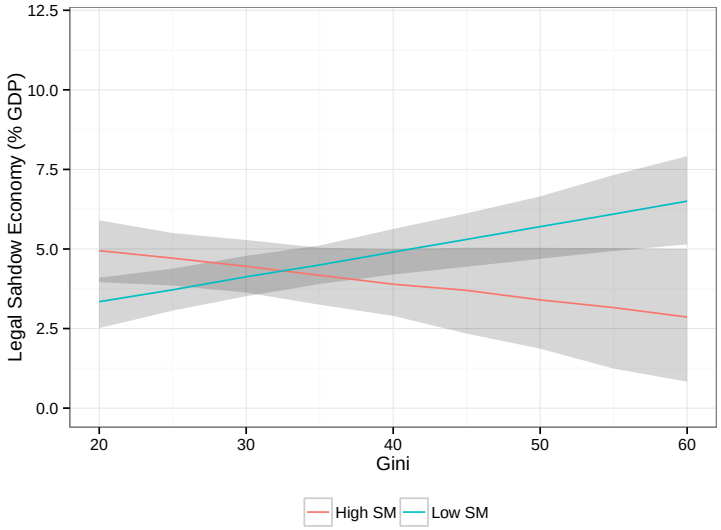
In Table 2 we interact the GINI coefficient with our measure of social mobility. As in the case of the analyses reported in Table 2, we include year dummies and all models are linear estimations with fixed effects at the country level. Also, as in Table 2, models 2, 4 and 6 include the above-mentioned controls. As we can see in Table 3, once we control for the social mobility in the country, the GINI coefficient by itself is no longer significant in any of the models. However, the measure of social mobility and, more importantly, its interaction with the GINI coefficient are statistically significant. This result implies that in countries with higher social mobility, i.e. with more equal opportunities to achieve high incomes, high levels of inequality is not associated with high tax evasion. On the other hand, when social mobility is low, higher inequality in the country does correlate with higher tax evasion. These results are also robust to the inclusion of the different controls. Moreover, this result is robust when we use other measures of social mobility as for example the simulations in Corak (2013).

Table 2: Regression: Tax Evasion and GDP

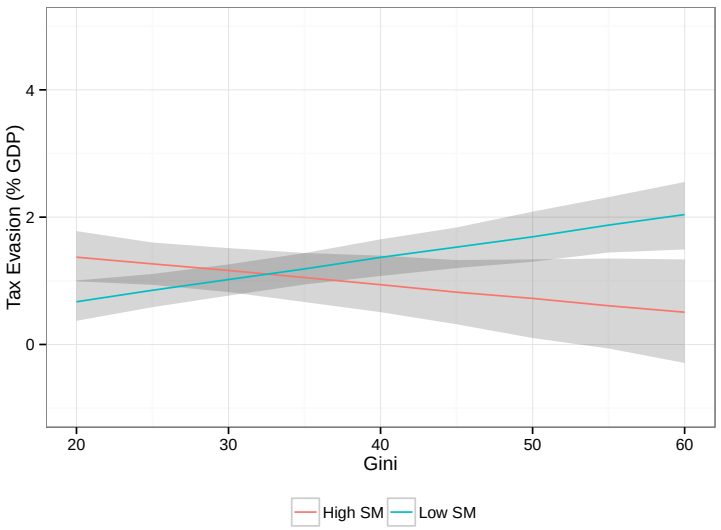
	(1) LSE b/se	(2) LSE b/se	(3) TE b/se	(4) TE b/se	(5) TEwSE b/se	(6) TEwSE b/se
Social Mobility	-10.807**	-10.699***	-4.067***	-4.969***	-5.568**	-6.032***
	(4.219)	(3.867)	(1.528)	(1.562)	(2.474)	(2.183)
GINI	-0.025	-0.043	-0.011	-0.019	-0.013	-0.024
	(0.047)	(0.044)	(0.017)	(0.016)	(0.028)	(0.025)
Social Mobility X GINI	0.301**	0.242**	0.103**	0.106**	0.167**	0.147**
	(0.122)	(0.117)	(0.044)	(0.043)	(0.072)	(0.066)
GDP per capita		-0.000**		-0.000**		-0.000**
		(0.000)		(0.000)		(0.000)
% Employed		-0.047***		-0.013***		-0.021***
		(0.011)		(0.004)		(0.006)
% Self-employed		0.072***		0.004		0.053***
		(0.022)		(0.008)		(0.012)
% Below secondary		0.072*		0.023		0.070***
		(0.042)		(0.022)		(0.024)
% Secondary		-0.085*		-0.040		-0.091***
		(0.050)		(0.026)		(0.028)
% Tertiary		-0.007		-0.018		-0.016
		(0.028)		(0.014)		(0.016)
Constant	7.255***	10.544***	2.193***	4.259***	3.302***	4.913***
	(1.479)	(1.750)	(0.535)	(0.771)	(0.869)	(0.987)
N	168	168	168	168	168	168
r2	0.02	0.68	0.00	0.53	0.01	0.76

The graphs in Figure 2 plot the effect of GINI on the three variables capturing tax evasion (LSE, TE and TESE) for different levels of social mobility. We divide the countries into those with High Social Mobility (High SM) and those with Low Social Mobility (Low SM) by splitting the sample of 21 countries in half (the 10 with higher SM and the 11 with higher SM). The slopes of inequality on tax evasion are very different. For those countries with high SM the effect of inequality on tax evasion is negligible (the line is flat and if anything the slope is negative). In contrast, tax evasion is significantly, and positively, related to inequality for those countries with Low SM.

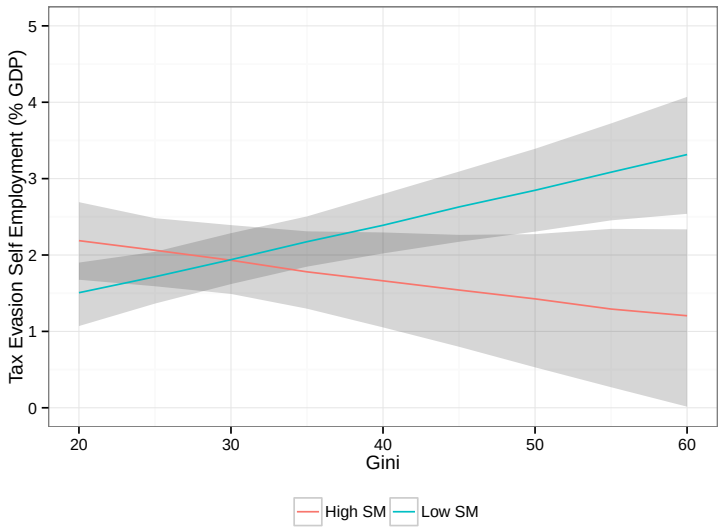
Figure 2: Inequality, Social Mobility and Tax Evasion



(a) Legal Shadow Economy



(b) Tax Evasion



(c) Tax Evasion Self Employment

Summary These data suggest three facts about tax compliance: tax morale is lower amongst the rich than is the case with the poor; inequality is negatively related to tax compliance suggesting that the rich are less likely to comply; and this correlation is moderated in contexts in which social mobility is relatively high suggesting that where ability matters the rich are less likely to cheat on their taxes. The latter finding suggests that tax compliance by the rich is not higher in contexts where luck or status play an important factor in determining one's earnings. Rather in contexts where barriers to social mobility are low, tax compliance by the rich may be higher. One of the perverse outcomes of this dynamic is that progressive taxation in contexts where corruption is pervasive (and hence income is unrelated to ability and effort) actually increases overall inequality in society because the rich cheat (Duncan and Peter 2008). It is difficult with these data though to tease out these causal relationships with much precision. One could of course propose a variety of counterfactuals accounting for the interaction we observe in Figure 2. Accordingly, we move to the experimental lab to see if we can strengthen our causal claims regarding tax compliance.

3 Tax Compliance Experiments

We employ real effort tax compliance experiments in order to understand why taxpayers cheat. There is a considerable literature on tax compliance experiments (Slemrod 2007). There is experimental evidence suggesting that tax compliance depends on features of the tax system (Alm, Jackson and McKee 1992, Spicer and Becker 1980). Some of these experimental results suggest that tax compliance is conditioned on the perceived equity of the tax system (Falkinger 1995); although some have not found such a relationship (Cowell 1990). Typically these experiments have explored whether or not compliance is affected by perceived features of the tax system.

Our tax compliance experiments are designed to isolate in as neutral a context as

possible the three hypothesised micro-foundations for compliance with redistributive taxation. It is explicitly a highly simplified tax regime and we make no claims regarding the external validity of the "stylised" regime itself. Of particular concern to us are the treatment effects resulting from randomly assigning subjects to different versions of this "stylised" tax regime. All the subjects experience essentially the same stylised tax regime – subjects are randomly assigned to slightly different treatment versions that are meant to isolate the factors (identified above) causing individuals to comply with redistributive taxation. We see this as an important building block to understanding redistributive preferences. Clearly tax regimes are more complex and tax compliance is likely to be conditioned on a variety of features of these regimes such as the nature of benefits resulting from taxation. This complexity will be added to the simple treatments described here as part of extensions to the project.

This essay reports the results for two treatments designed to provide insight into how these three factors shape tax compliance and hence preferences for redistributive taxation. Subjects are paid at the end of experiment, and do not receive feedback about earnings until the end of the experiment. Participants receive printed instructions at the beginning of each module, and instructions are read and explained aloud.

The tax treatments consist of ten rounds each. Table 3 summarises the treatments that are implemented in these two modules of the experiment. Prior to the tax treatments, participants are randomly assigned to groups of six and we follow a partner matching. Thus, the composition of each group remains unchanged for the two tax treatment modules. Each round of these two tax modules is divided in two stages. In the first module subjects perform a real effort task. This task consist of computing a series of additions in one minute. Their Preliminary Gains depend on how many correct answers they provide, getting 150 ECUs for each correct answer.

Once subjects have received information concerning their Preliminary Gains, partic-

ipants are asked to declare these gains. A certain percentage or "tax" (that depends on the treatment) of these Declared Gains is then deducted from their Preliminary Gains.[4] These deductions are then evenly divided amongst the members of the group. We conduct seven of these sessions which are summarised in Table 3. Note that in each session the tax rate is consistent and it does not vary from the second to the third module. The tax treatments are the following: 10%, 20%, 30%.

Table 3: Summary of Tax Compliance Experimental Treatments

Session	Participants	Groups	Tax Rate	AR Block 1	AR Block 2	Treatment
1	24	6	10%	0%	100%	Baseline
2	24	6	20%	0%	100%	Baseline
3	24	6	30%	0%	100%	Baseline
4	24	6	10%	0%	100%	Status
5	12	3	20%	0%	100%	Status
6	16	4	20%	0%	100%	Status
7	20	5	30%	0%	100%	Status

We had two salary treatments designed to determine whether subjects conditioned their compliance behaviour on the extent to which salaries were linked strictly to ability as opposed to being associated with"luck" or "status". Accordingly in the first equal salary treatment subjects get the same payment for correct answers to the real effort test (10 cents). This represents the ability salary treatment in which salaries are strictly tied to performance. In the different salary treatment (Inequality) the two low performing ("Low Status") subjects get 5 cents per correct answer and the high performing ("High Status") subjects get 15 cents per correct answer. Random assignment determines those earning higher returns to effort and hence introduces our notion of "luck" or "status" into the resulting income distribution.

[4]We explicitly avoid framing the game in terms of "taxes". Subjects are told that a deduction (rather than a "tax") would be applied to earnings.

In each module there is a certain probability that the Declared Gains are compared with the actual Preliminary Gains in order to verify these two amounts correspond. In one module the probability is 0%, while this probability changes to 100% in the the other module. In this essay we only report the results for the zero audit probability treatment.

At the end of each round participants are informed of their Preliminary and Declared gains; the amount they receive from the deductions in their group; and the earnings in the round. At the end of each tax session one of the ten rounds is chosen at random, and their earnings are based on their profit for that round.

At the end of the experiment their earnings in ECUs are converted to sterling at the exchange rate 300ECUs = 1£. While the earnings are computed and payoffs prepared participants are asked to answer a questionnaire, which consists on an Integrity Test, and a series of socio-demographic questions.

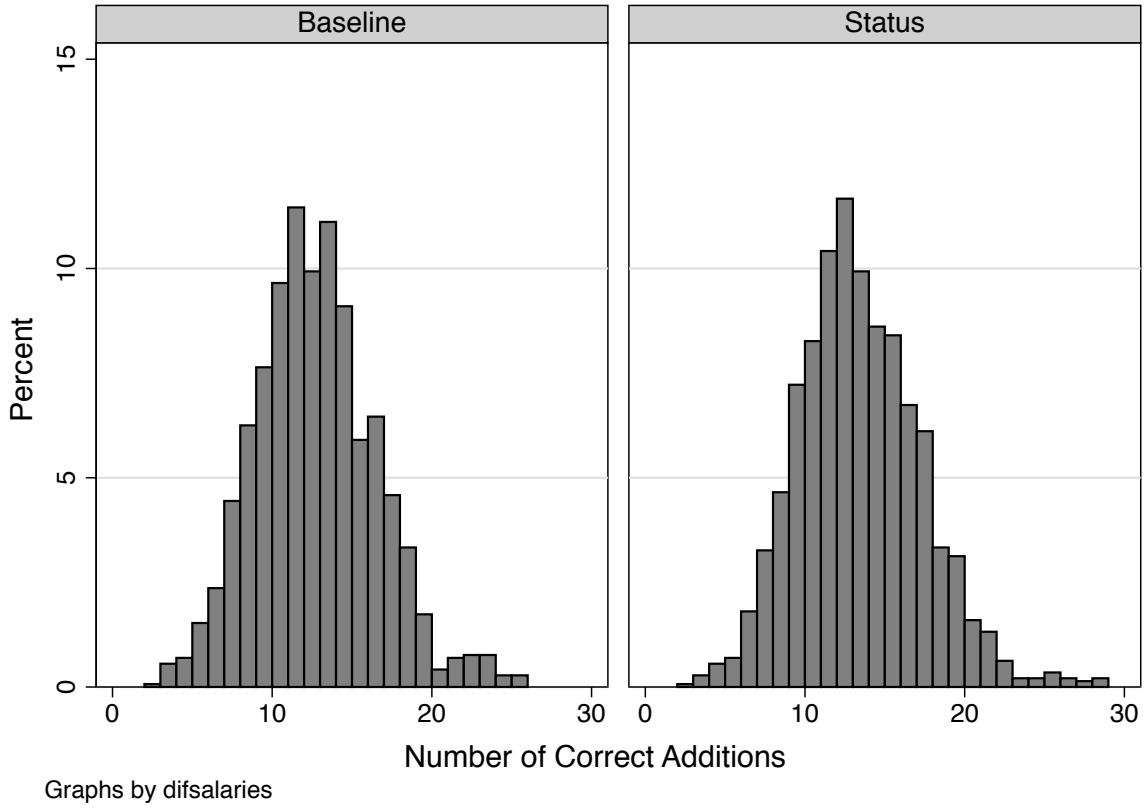
All of the sessions were conducted at CESS (Centre for Experimental Social Sciences), a research facility of Nuffield College, at the University of Oxford. Either 20 or 24 subjects participated in each session. Subjects were recruited from undergraduate and graduate courses of that university. Some of the subjects had participated in previous experiments, but all of them were inexperienced in this particular type of experiment. No subject participated in more than one session of the study. On average, a session lasted around 90 minutes, including instructions and payment of subjects, and the average payment was around 17£. The experiment was computerized using ZTREE (Fischbacher 2007). A copy of the instructions can be found in the Appendix.

3.1 Effort

The experimental treatments are designed to shed some light on our three conjectures regarding tax cheating. Accordingly, we implemented a treatment in which income from the real effort tasks (additions) is entirely determined by performance – each subject

receives 10 cents per correct addition – and a treatment in which a randomly assigned status (high/low) determines the subject's income associated with correct additions (5 versus 15 cents). Figure 3 summarises the performance of the subjects in these two treatments. The mean correct additions is very similar in the two treatments – an average of about 12 in the baseline and 13 in the status treatments. There was also no indication that effort was conditioned on the tax rates – the average correct additions for the 10%, 20%, and 30% tax rates, respectively, were 12.7, 11.8, and 12.1.

Figure 3: Real Effort Tasks: Correct Additions in Baseline and Status Treatments

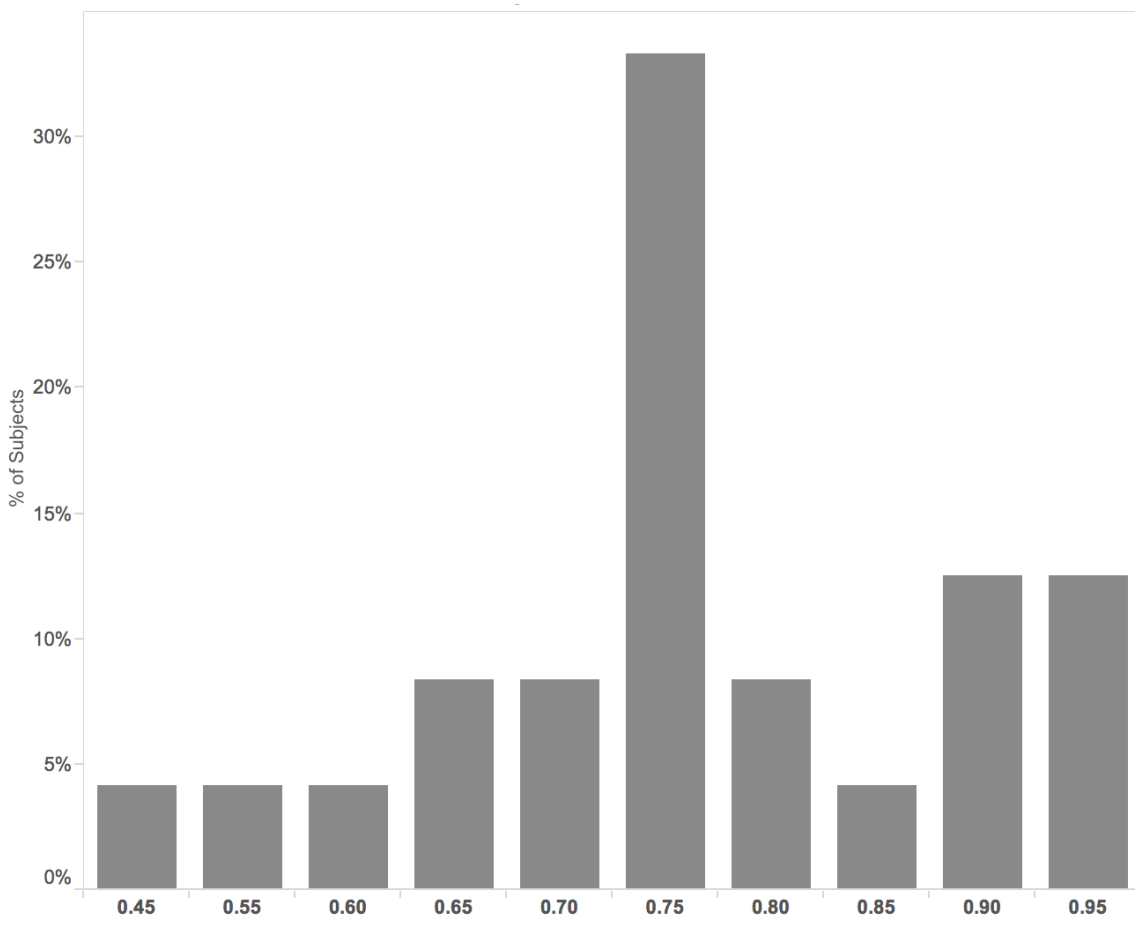


3.2 Cheating

The outcome variable of interest in this experiment is tax compliance. In order to ensure subjects had incentives to cheat we adopted an audit rate of zero and hence subjects were not penalised for cheating. Revenue collected from these taxes is simply distributed equally amongst subjects and hence there are no social gains (or losses) associated with compliance. As a result the equilibrium choice for all subjects is to report zero earnings. Our expectation based on an extensive literature on public goods games is that subjects will make positive contributions even in settings where the equilibrium choice is to give nothing. And in fact the success of redistributive taxation presumes this non-equilibrium behaviour since many individuals face audit rates that are close to zero.

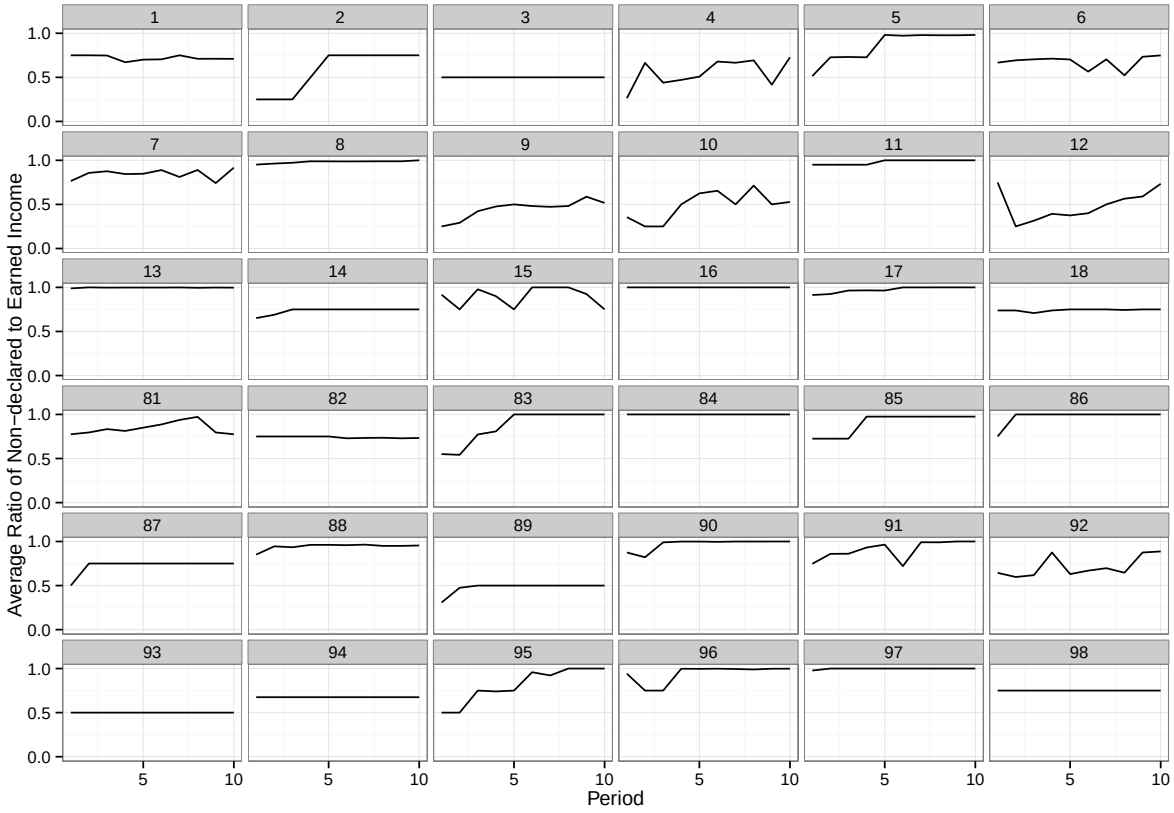
There is in fact compliance even in this very stylised tax regime. Nevertheless, all of the subjects in the experimental sessions cheated. The typical pattern is for subjects to declare all (or close to all) of their earnings in a particular round and then in other rounds to declare zero earnings. Figure 4 presents the subjects' average ratio of non-declared to total earnings. On average, subjects' choices are not dramatically different from equilibrium behaviour: They report about 20 percent of the total income they earn over the 10 sessions with zero audit. There is though considerable variation in cheating although none of the subjects reported more than 50 percent of their total earnings averaged over the 10 sessions.

Figure 4: Frequency of Subjects' Average Ratio of Non-declared to Total Earnings



Subjects within a particular group earn and report income over ten periods. For each of these groups, Figure 5 presents the average cheating rates for each of the ten periods. Average cheating in each group is for the most part quite constant. And to the extent that there is a trend in cheating, it is consistent with trends we typically find in public goods games whereby contributions fall as the subjects approach the final period of play (Levitt and List 2007). Of the 36 groups, there are around ten groups for which average cheating rates rise significantly by period ten. Hence there is some evidence here to suggest that any obligation subjects feed toward compliance erodes significantly as the end of the game approaches – in a number of cases reaching levels predicted by equilibrium reasoning.

Figure 5: Ratio of Non-declared to Total Earnings Averaged over Subjects



3.3 Multivariate

Cheating is measured in two fashions in this experiment: 1) simply whether or not the subject correctly reported her income from the real effort task; and 2) the percent of a subject's actual income from the real effort task that was not reported. We model whether or not subjects cheated as a dichotomous variable. Subjects who reported their actual winnings are coded zero and those who reported amounts that deviated from their actual winnings are coded one. Results for the dichotomous measure of cheating are reported in Table 5 while results for the percent compliance dependent variable are reported in the Appendix.

Model 1 in Table 4 presents the baseline treatment in which all subjects earn the same amount for each correct addition (10 cents). This baseline treatment represents a context in which the labour market rewards ability and there are no structural factors that cause some individuals to earn more for their (equal) ability than others. For this baseline treatment our expectations are based on the two conjectures described above: performance should be correlated with cheating – better performers (higher earners) should cheat more; and the existence of tax norms would predict cheating to rise as rates exceed 20-30 percent. This is precisely what we see in these results. Note that the probability of cheating rises with income. And cheating is significantly higher for those subjects in the 30 percent, as opposed to 10 percent, tax regimes. Hence in contexts where ability is the sole factor determining income, the rich are more likely to cheat and cheating rises significantly as taxes exceed 30 percent.

Models 2 and 3 in Table 4 present the results for the "status" treatments in which subjects were randomly assigned to high and low wages. Model 2 is similar to the baseline case with respect to the performance variable – there is a significant, and similar, positive correlation between performance and cheating. Model 3 suggests, though, that this correlation is much different for those assigned to the low wage treatment as compared to

those in the high wage treatment. Amongst those with low status, there is a very strong correlation between performance and cheating – earning more in the "unfair" treatment results in high levels of cheating. The coefficient on the High Salary X Additions interaction term suggests that the correlation between performance and cheating for those assigned to the high status condition is very similar to the correlation for subjects in the baseline treatments. This result speaks to our third conjecture: In contexts where higher returns to labour (or effort) are the result of status and less directly tied to ability, the rich are *no* more likely to comply with redistributive taxation. The rich who are favoured by luck or status comply in a fashion that is similar to the rich in the baseline treatment – they are more likely to cheat than the poor. The rich who are penalised by structural factors though are *much more* likely than the poor to cheat on their taxes – the rich-poor differential in compliance for this treatment is dramatically larger than the baseline treatment.[5]

Responses to tax rates in the status treatment also differ from those in the baseline treatment. At the lowest level of taxation – 10 percent – cheating by the low and high status types is very similar – between 90 and 95 percent cheat. At the highest, 30 percent, tax rate we see very large differences between the low and high status types: all the low status subjects cheat in the this high tax category while a relatively low, 70 percent, of the high status subjects cheat. Our intuition here is that those who do not benefit from advantages related to status or luck will be particularly resentful of high taxes and hence strongly prone to tax avoidance. In fact, in our case, all of the subjects in this category cheat at their taxes. We capture these tax effects for the status treatment model by including, in Models 2 and 3, a tax dummy variable for the high tax treatments (20 and 30 percent). In Model 3 we interact the high tax dummy with the status dummy variable.

[5]Table 5 in the Appendix estimates the same models with the same dependent variable – but income rather than performance is the measure of ability in this estimation. The results are the same as those in Table 4. Table 6 and Table 7 in Appendix 1 replicate the analysis in Table 4 and Table 5 with a dependent variable that measures the percent of a subject's earnings that were not reported. The results essentially confirm the findings from Table 5 and Table 4.

In Model 2 the High Tax dummy is significant but in the wrong direction. This of course ignores the fact that the low and high status types seem to respond differently to the tax rates. In Model 3 where we include the High Tax interaction with the status dummy variable, the results seem to better characterise the behaviour or our subjects. The significant negative coefficient on the High Tax X High Salary interaction term suggests that low status types are much more likely to cheat in the High Tax condition than is the case for high status types.

Table 4: Probability of cheating regressed on performance

	(1) Baseline P(Cheat)	(2) Status P(Cheat)	(3) Status P(Cheat)
# of Additions	0.107***	0.189***	0.380***
	(0.017)	(0.024)	(0.057)
High Tax	0.674***	−0.475***	0.174
	(0.120)	(0.159)	(0.260)
Ideology	0.095***	−0.033	−0.023
	(0.028)	(0.033)	(0.034)
Female	−0.382***	0.198	0.057
	(0.126)	(0.139)	(0.149)
Age	−0.022**	−0.004	0.005
	(0.010)	(0.008)	(0.009)
High Salary			2.678***
			(0.674)
High Salary X Additions			−0.238***
			(0.061)
High Tax X High Salary			−1.132***
			(0.347)
Constant	−0.462	−0.553	−2.756***
	(0.335)	(0.384)	(0.683)
Observations	720	720	720
Log Likelihood	−313.890	−228.666	−206.290
Akaike Inf. Crit.	639.780	469.332	430.580

Note: *p<0.1; **p<0.05; ***p<0.01

There clearly is an interaction between the tax and status treatments. Figure 6 and Figure 7 help understand the interaction effects by presenting predicted cheating probabilities from the results in Table 4. The graphs plot the predicted probability of cheating against subjects' performance in the real effort task, controlling for baseline and status treatments. First, in all treatments there is a strong positive relationship between income (or performance) and cheating. Figure 6 represents the relationship between performance and the probability of cheating for those in the Low Tax treatment. For subjects in the baseline treatment the correlation between performance and the probability of cheating is the most moderate, although quite strong. Subjects randomly assigned to low status in the status treatments have very high probabilities of cheating – in fact only at the very low performance levels does the probability of compliance deviate from 1. And for subjects assigned to high status, the correlation between performance and the probability of cheating is high, although somewhat lower than those in the low status category. For subjects in the baseline treatment the correlation is also high, although lower than that of subjects in the status treatments.

Figure 6: Predicted Probabilities of Cheating by Earnings Controlling for Status and Baseline Treatments (Low Tax)

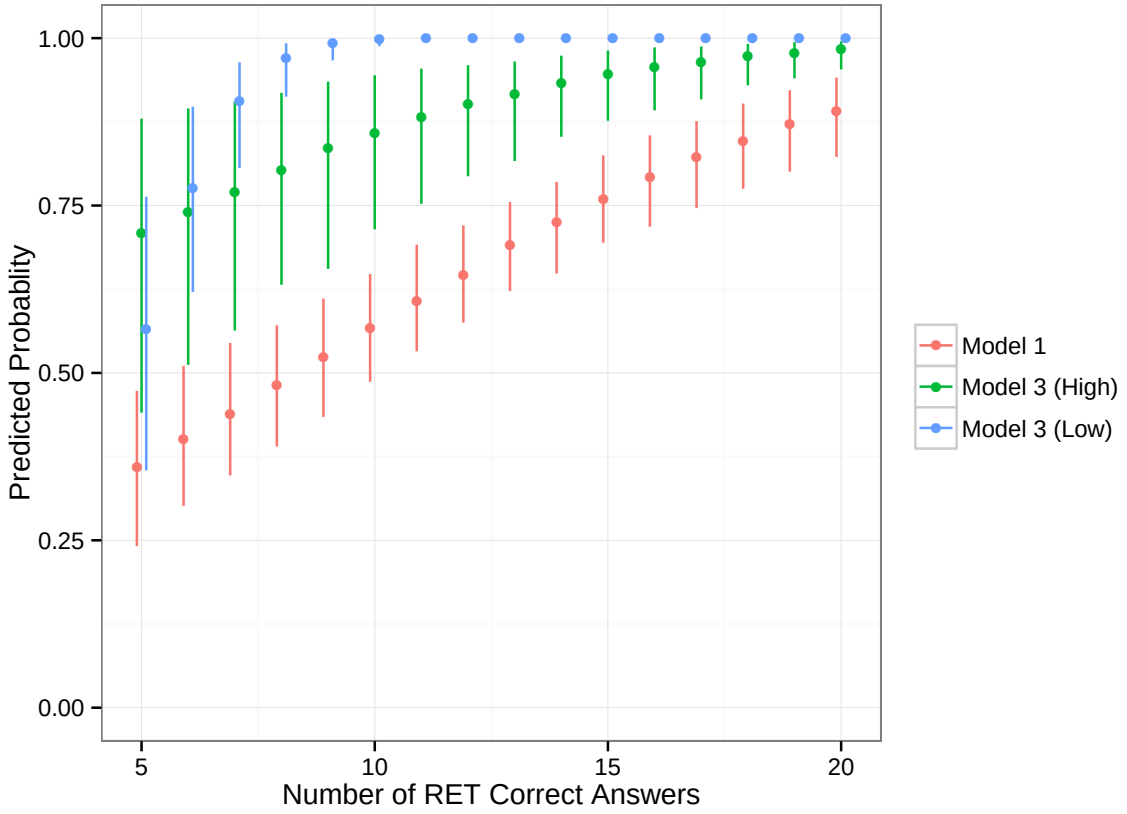
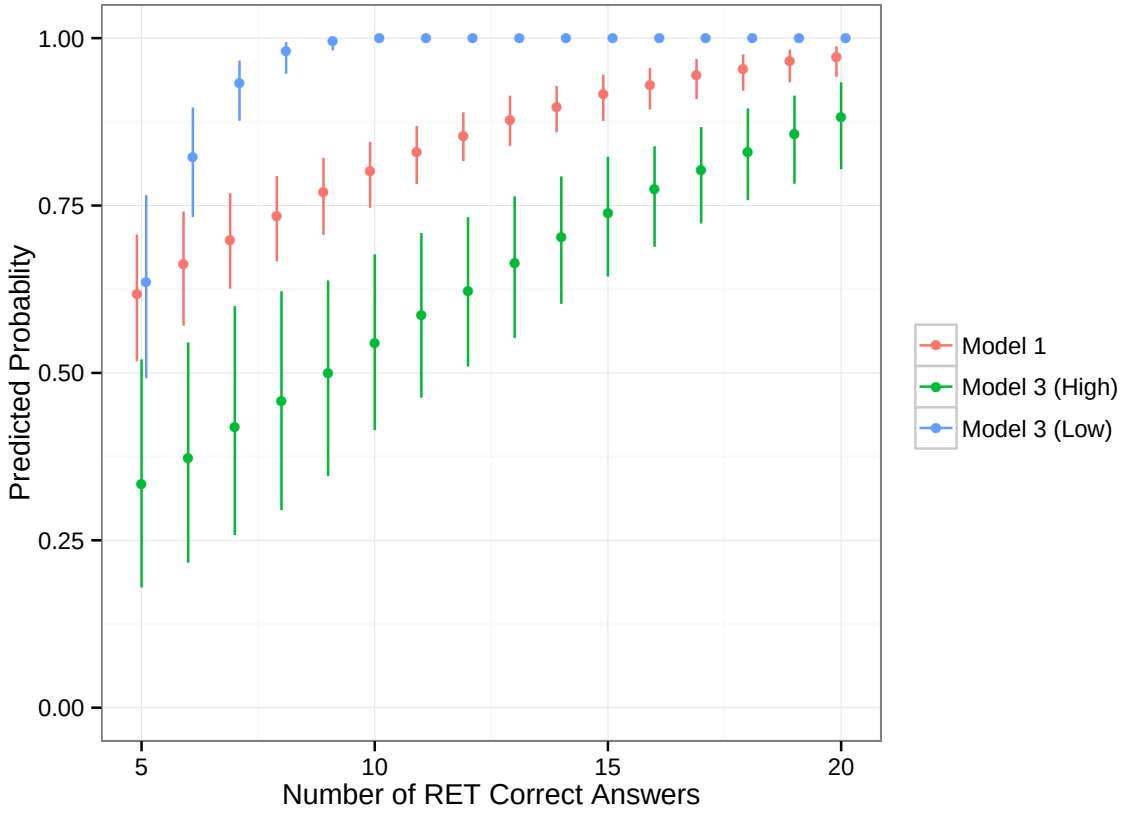


Figure 7 presents the same relationship between performance and cheating probabilities for those assigned to the High Tax treatment. As was clear from Table 4, in the baseline treatment cheating increased significantly, particularly when tax rates reached 30 percent. Comparing Figure 7 with Figure 6, its clear that, even for the lowest performing subjects in the baseline treatment, cheating rates are dramatically higher in the High Tax treatments. In the status treatment, higher taxes moderate the cheating probabilities of the high status types and widens their difference with the low status types. A reasonably strong performing high status type in the High Tax treatment who answers 15 math additions correctly has a .75 probability of cheating which is significantly lower than their .95 probability in the Low Tax treatment; and is similar to their probability of cheating in the Low Tax, baseline, treatment. When taxes are high there is evidence that the high status types, i.e. those benefiting from chance factors, are more likely to comply with redistributive taxation. Its both the poor and the rich assigned to the high status treatment who cheat less, although the poor become significantly more generous than the rich.

Figure 7: Predicted Probabilities of Cheating by Earnings Controlling for Status and Baseline Treatments (High Tax)



4 Discussion

Survey data on tax morale suggest that as incomes rise tax compliance is likely to fall. There is strong support in these data for the notion that the rich are more likely to engage in greedy or unethical behaviour. But this tendency seems to vary across national contexts. Aggregate tax compliance data tell a similar story: As inequality rises (and the redistributive tax burden increases for the rich) tax compliance falls. Although these are aggregate data, given the distribution of income in these societies, its reasonable to assume that the rich account for much of this shirking. We find some evidence that this correlation is significantly attenuated in contexts in which there is high social mobility. It would seem that when income is more strongly correlated with ability, the rich are more likely to comply with redistributive taxes. In contexts in which luck or status significantly affect returns to labour, the rich are more likely to cheat at their taxes.

We conduct tax compliance experiments in order to better understand these aggregate-level correlations. The treatments were designed to determine whether simply becoming richer triggers the greedy reflex of tax avoidance; whether there exists a tax norm such that compliance declines universally as tax rates reach a particular threshold; and whether the extent to which income is determined by luck versus ability conditions tax compliance (by the rich in particular). The lab environment allows us to assess the plausibility of these causal claims.

Tax avoidance is positively related to income – subjects in our experiments who perform better on real effort tasks (and earn higher pay) cheat more at taxes. This is an extremely robust finding that emerges in the tax experiments reported here but also in many of the other tax compliance experiments that we have conducted. Simply performing better on these tasks and earning more income is sufficient to trigger greater levels of cheating. Its important to note that the nature of this experimental context likely allows us to exclude some of the explanations for why the rich cheat. There is no

opportunity for socialisation here – family members or other rich types in ones social network do not have an opportunity to socialise in this experimental context. And its not the case that information costs can explain higher rates of cheating – the rich in our experimental context do not have access to professional tax consultants who could facilitate tax avoidance (moreover our tax code is extremely simple).

But we do not really isolate the causal factor explaining why the rich cheat more at their taxes. Ability determines income in our experiment and hence ability might correlate with unethical personality characteristics. There might be a general norm in the population whereby greedy or unethical behaviour is deemed more acceptable as the absolute size of the monetary stakes rise. Whatever the explanation, the results are consistent with other experimental findings suggesting that the rich are more likely to exhibit greedy or unethical behaviour.

Of course the poor also cheat although at lower rates than the rich. And the tax compliance of both the rich and poor varies across national contexts. We are interested in understanding how context conditions tax compliance. One of our conjectures in this regard is that there is a tax rate threshold that triggers non-compliance? We speculated that this threshold is in the vicinity of 30 percent – as tax rates approach this 30 percent level tax cheating rises significantly. There is evidence to suggest this is the case – in general compliance drops quite significantly in the 30 percent tax category.

There is a considerable literature suggesting that the redistributive preferences of the rich in some contexts are more supportive of redistribution – for example, claims that the rich in Europe embrace redistribution much more enthusiastically than in the United States. One might expect these patterns to be reflected in compliance with redistribute taxation. The tax compliance experiments explored the notion that the rich are more likely to comply with redistributive taxation in contexts where they perceive luck or status to play an important role in determining high income. The implication is that tax

compliance should be higher in contexts where luck is a factor in determining income. Subjects in our experiments were randomly assigned either to a baseline treatment in which income was entirely determined by ability (all subjects earned the same wage) or to a treatment in which, again by chance, subjects were signed to high status or low status wage rate. The baseline treatment was designed to resemble a context in which effort and ability are rewarded and factors unrelated to performance do not affect earnings. In the high/low status treatment subjects are by chance assigned to a high versus low salary condition – hence a combination of luck (their randomly assigned wage level) and ability determine their monetary gains.

Our experimental findings, consistent with the aggregate data analyses, challenge this conjecture regarding luck or status and the redistributive preferences of the rich. The conjecture suggests that those in the labour force who benefit from what we are calling "high status" will be more favourably disposed to redistribution. In fact, for those who were lucky enough to be assigned to the high wage treatment, the correlation between income and tax cheating is essentially the same as in the baseline treatment (in which all wages were the same). The rich are not more generous in contexts where their incomes are inflated by factors unrelated to ability or effort.

And of particular interest is the tax compliance behaviour of those in the high/low status treatment who get randomly assigned to a low salary condition. For these unlucky subjects, the correlation between income and tax cheating is significantly higher than for the high status subjects. As a result, those who are high performers amongst the low status subjects are more likely to cheat on their taxes than is the case for the high performers in the high status condition. If the rich perceive that factors unrelated to effort affect *their* returns to labour then they are much more likely to cheat at taxes than they would in a context where income is strictly determined by ability and effort.

But if the high status treatment is combined with the high tax treatment (which, as

Alesina and Angeletos (2005) point out, is frequently the case in the real world) we do see some evidence of the "noblesse oblige" effect. Subjects who materially benefit from the high status treatment *and* are assigned to high tax treatments are more likely to comply with redistributive taxes. But this effect is particularly large for the low wage earners and less dramatic for the high wage earners.

These results address arguments that the perceived role of luck versus ability conditions the redistributive preferences of the rich. In this study we focus on the actual revealed preferences of the rich – their compliance with redistributive taxation. The claim that, in contexts in which the rich benefit from status or luck, tax compliance by the rich will be relatively higher, receives only limited support from our tax compliance experiments. The strong predilection for tax cheating by the rich is only slightly moderated in contexts where their income is affected by luck or status. Moreover, for the rich who are disadvantaged by luck or status, tax cheating is dramatically higher than if income were strictly determined by ability or effort.

The rich are going to cheat – data on tax morale and actual tax avoidance indicated this is the case; as do our experimental results. Moreover this cheating rises quite dramatically as tax rates approach 30 percent. It comes as no surprise then that with globalization and technological advances in financial transactions, the rich availed themselves of tax havens and banking services that allow them to avoid paying taxes. As Zucman (2014) points out, a growing portion of the wealth of the richest Americans is held in off-shore banking havens. Our results suggest that it will be extremely difficult to significantly eliminate such behaviour on the part of the rich. The challenging question is what institutions are likely to moderate tax avoidance by the rich. Our results suggest that institutional contexts in which the rich perceive that income is determined by ability rather than luck or status are most likely to favour compliance with redistributive taxation by the rich.

References

Alesina, A. and E. La Ferrara. 2005. "Preferences for Redistribution in the Land of Opportunities." *Journal of Public Economics* 89(5-6):897–931.

Alesina, A. and P. Giuliano. 2009. "Preferences for Redistribution." NBER Working Paper.

Alesina, Alberto and Edward L Glaeser. 2004. *Fighting Poverty in the US and Europe. A world of Difference*. Oxford: Oxford University Press.

Alesina, Alberto and George-Marios Angeletos. 2005. "Fairness and Redistribution." *American Economic Review* 95(4):960–980.

Alm, James and Benno Torgler. 2005. "Cultural Differences and Tax Morale." Working Paper.

Alm, James, Betty R. Jackson and Michael McKee. 1992. "Estimating the Determinants of Taxpayer Compliance with Experimental Data." *Economic Development and Cultural Change* 39(4):107–14.

Alm, James and Michael McKee. 2006. "Audit Certainty, Audit Productivity, and Taxpayer Compliance." *National Tax Journal* 59(4):801 – 816.
URL: *http://search.ebscohost.com/login.aspx?direct=truedb=bthAN=23639630site=ehost-live*

Anderhub, V., S. Giese, W. Guth, A. Hoffmann and T. Otto. 2001. "Tax evasion with earned income - an experimental study." *FinanzArchiv* 58:188–206.

Bartels, Larry M. 2005. "Homer Gets a Tax Cut: Inequality and Public Policy in the American Mind.".

Becker, Winfried, Heinz-Jurgen Buchner and Simon Sleeking. 1987. "The impact of public transfer expenditures on tax evasion: An experimental approach." *Journal of Public Economics* 34(2):243–252.

Benabou, R. and J. Tirole. 2006. "Belief in a Just World and Redistributive Politics." *Quarterly Journal of Economics* 121(2):699–746.

Bradly, J.C. 1987. "Income tax evasion and the tax schedule: Some experimental results." *Public Finance* 42(3):357–383.

Buehn, A. and F. Schneider. 2012. "Size and Development of Tax Evasion in 38 OECD Countries: What do we (not) know?" CESIFO WORKING PAPER NO. 4004.

Corak, Miles. 2013. "Income Inequality, Equality of Opportunity, and Intergenerational Mobility." *Journal of Economic Perspectives* 27(3):79–102.

Cowell, Frank. 1990. *Cheating the Government: The Economics of Evasion*. MIT University Press.

Dimick, Matthew, David Rueda and Daniel Stegmueller. 2014. "Inequality, Fairness, and Preferences for Redistribution?" Manuscript.

Duch, Raymond M. and David Rueda. 2014. "The People You Are: Personality Traits as Determinants of Redistribution Preferences." Nuffield College CESS Working Paper.

Duncan, Denvil and Klara Sabirianova Peter. 2008. "Tax Progressivity and Income Inequality." Andrew Young School of Policy Studies Research Paper Series. Working Paper 08-26.

Durham, Yvonne, Tracy S. Manly and Christina Ritsema. 2014. "The Effects of Income Source, Context, and Income Level on Tax Compliance Decisions in a Dynamic Experiment." *Journal of Economic Psychology* 40:220–233.

Falkinger, Josef. 1995. "Tax Evasion, Consumption of Public Goods, and Fairness." *Journal of Economic Psychology* 16(1):63–74.

Fehr, Ernst and K M Schmidt. 2006. The Economics of Fairness, Reciprocity, and Altruism: Experimental Evidence and New Theories. In *Handbook of the Economics of Giving, Reciprocity, and Altruism*, ed. Serge-Christophe Kolm and Jean Mercier Ythier. Elsevier.

Fischbacher, U. 2007. "z-Tree: Zurich Toolbox for Ready-made Economic Experiments." *Experimental Economics* 10:171–78.

Iversen, Torben and David Soskice. 2009. "Distribution and Redistribution: The Shadow of the Nineteenth Century." *World Politics* 61(03):438.

Jerrim, John and Lindsey Macmillan. 2014. Income inequality, intergenerational mobility and the Great Gatsby Curve: is education the key? DoQSS Working Papers 14-18 Department of Quantitative Social Science - UCL Institute of Education, University College London.
URL: *http://ideas.repec.org/p/qss/dqsswp/1418.html*

Kai, Konrad A. and Florian Morath. 2011. "Aspirations of the Middle Class: Voting on Redistribution and Status Concerns." Working Paper 2011 06.

Levitt, Stephen and John List. 2007. "What Do Laboratory Experiments Measuring Social Preferences Reveal about the Real World." *The Journal of Economic Perspectives* 21(7):153–174.

Lindert, Peter H. 1996. "What limits social spending?" *Explorations in Economic History* 33:1–34.

Meltzer, Allan H. and Scott Richards. 1981. "A Rational Theory of the Size of Government." *Journal of Political Economy* 89:914–27.

Moene, Kark Ove and Michael Wallerstein. 2001*a*. "Inequality, Social Insurance and Redistribution." *American Political Science Review* 95(4):859–874.

Moene, Karl Ove and Michael Wallerstein. 2001*b*. "Inequality, Social Insurance, and Redistribution." *American Political Science Review* 95(4):859–874.

Piff, Paul K., Daniel M. Stancato, Stphane Ct, Rodolfo Mendoza-Denton and Dacher Keltner. 2012. "Higher social class predicts increased unethical behavior." *Proceedings of the National Academy of Science of the United States of America* .

Piketty, T. 1995. "Social Mobility and Redistributive Politics." *Quarterly Journal of Economics* 110(3):551–584.

Richardson, G. 2006. "Determinants of Tax Evasion: A Cross-country Investigation." *Journal of International Accounting, Auditing and Taxation* 15:150–169.

Romer, Thomas. 1975. "Individual welfare, majority voting and the properties of a linear income tax." *Journal of Public Economics* 4:163–185.

Slemrod, Joel. 2007. "Cheating Ourselves: The Economics of Tax Evasion." *The Journal of Economic Perspectives* 21:25–48.

Spicer, Michael W. and Lee A. Becker. 1980. "Fiscal Inequity and Tax Evasion: An Experimental Approach." *National Tax Journal* 33(2):171–75.

Trivedi, Viswanath Umashanker and Janne O.Y.Chung. 2006. "The Impact of Compensation Level and Context on Income Reporting Behavior in the Laboratory." *Behavioral Research in Accounting* 18(1):167–183.

Zucman, Gabriel. 2014. "Taxing across Borders: Tracking Personal Wealth and Corporate Profits." *Journal of Economic Perspectives* 28(4):121–148.

5 Appendix 1: Regression with Percent of Earnings not Reported as Dependent Variable

Table 4 replicates the estimation in Table 4 although here the measure of ability is income rather than performance. Model 1 in Table 5 presents the baseline treatment in which all subjects earn the same amount for each correct addition (10 cents). This baseline treatment represents a context in which the labour market rewards ability and there are no structural factors that cause some individuals to earn more for their (equal) ability than others. For this baseline treatment our expectations are based on the two conjectures described above: income should be correlated with cheating – better performers (higher earners) should cheat more; and the existence of tax norms would predict cheating to rise as rates exceed 20-30 percent. This is precisely what we see in these results. Note that the probability of cheating rises with income. And cheating is significantly higher for those subjects in the 30 percent, as opposed to 10 percent, tax regimes.

Models 2 and 3 in Table 5 present the results for those contexts in which factors not related to ability shape returns to effort. We capture this by randomly assigning subjects to a high (15 cents for correct answers) and low returns (5 cents for correct answers) treatment. Model 2 replicates the specification of Model 1. Income continues to be important although the tax norm is statistically significant although in the wrong direction – it is negative. Model 3 includes an interaction term for the status variable and income. There is no evidence though here that high status affects the effects of income on cheating – the status interaction term is not statistically significant.

Table 6 and Table 7 replicate the analysis in Table 4 and Table 5 with a dependent variable that measures the percent of a subject's earnings that were not reported. The results essentially confirm the findings from Table 4 and Table 5. In the baseline treatment in which monetary rewards are strictly determined by performance and abil-

ity, our two initial conjectures are supported: there is a significant positive correlation between earnings and cheating; and cheating rises significantly when the tax rate reaches 30 percent.

Table 5: Probability of cheating regressed on income

	(1) Baseline P(Cheat)	(2) Status P(Cheat)	(3) Status P(Cheat)
Gross Profit	0.107***	0.030***	0.570***
	(0.017)	(0.011)	(0.086)
High Tax	0.674***	−0.565***	0.174
	(0.120)	(0.148)	(0.260)
Ideology	0.095***	0.0003	−0.023
	(0.028)	(0.032)	(0.034)
Female	−0.382***	0.437***	0.057
	(0.126)	(0.127)	(0.149)
Age	−0.022**	−0.024***	0.005
	(0.010)	(0.007)	(0.009)
High Salary			2.678***
			(0.674)
High Salary X Gross Profit			−0.464***
			(0.086)
High Tax X High Salary			−1.132***
			(0.347)
Constant	−0.462	1.525***	−2.756***
	(0.335)	(0.270)	(0.683)
Observations	720	720	720
Log Likelihood	−313.890	−263.658	−206.290
Akaike Inf. Crit.	639.780	539.316	430.580

Note: *p<0.1; **p<0.05; ***p<0.01

Table 6: Percent evaded regressed on performance

	(1) Baseline P(Cheat)	(2) Status P(Cheat)	(3) Status P(Cheat)
# of Additions	0.067***	0.065***	0.094***
	(0.013)	(0.014)	(0.021)
High Tax	0.467***	−0.216**	0.189
	(0.107)	(0.101)	(0.142)
Ideology	0.053**	−0.040	−0.028
	(0.024)	(0.025)	(0.025)
Female	−0.154	0.312***	0.258***
	(0.107)	(0.099)	(0.099)
Age	−0.034***	−0.018**	−0.018**
	(0.010)	(0.007)	(0.007)
High Salary			0.762**
			(0.374)
High Salary X Additions			−0.035
			(0.026)
High Tax X High Salary			−0.832***
			(0.203)
Constant	0.131	0.614**	0.074
	(0.313)	(0.277)	(0.360)
ϕ	0.418	0.476	0.493
	(0.018)	(0.022)	(0.023)
Observations	720	720	720
Log Likelihood	2,270.190	2,454.756	2,466.023

Note: *p<0.1; **p<0.05; ***p<0.01

Table 7: Percent evaded regressed on income

	Dependent variable:		
	(1)	(2)	(3)
Gross Profit	0.067^{***}	0.012	0.141^{***}
	(0.013)	(0.008)	(0.031)
High Tax	0.467^{***}	-0.234^{**}	0.189
	(0.107)	(0.101)	(0.142)
Ideology	0.053^{**}	-0.022	-0.028
	(0.024)	(0.025)	(0.025)
Female	-0.154	0.405^{***}	0.258^{***}
	(0.107)	(0.097)	(0.099)
Age	-0.034^{***}	-0.025^{***}	-0.018^{**}
	(0.010)	(0.007)	(0.007)
High Salary			0.762^{**}
			(0.374)
High Salary X Gross Profit			-0.129^{***}
			(0.043)
High Tax X High Salary			-0.832^{***}
			(0.203)
Constant	0.131	1.336^{***}	0.074
	(0.313)	(0.234)	(0.360)
ϕ	0.418	0.463	0.493
	(0.018)	(0.021)	(0.023)
Observations	720	720	720
Log Likelihood	2,270.190	2,445.150	2,466.023
Note:			*p<0.1; **p<0.05; ***p<0.01

6 Appendix 2: Screen Shots from Real Effort Tasks

Figure 8: Screen Shot One from Real Effort Task

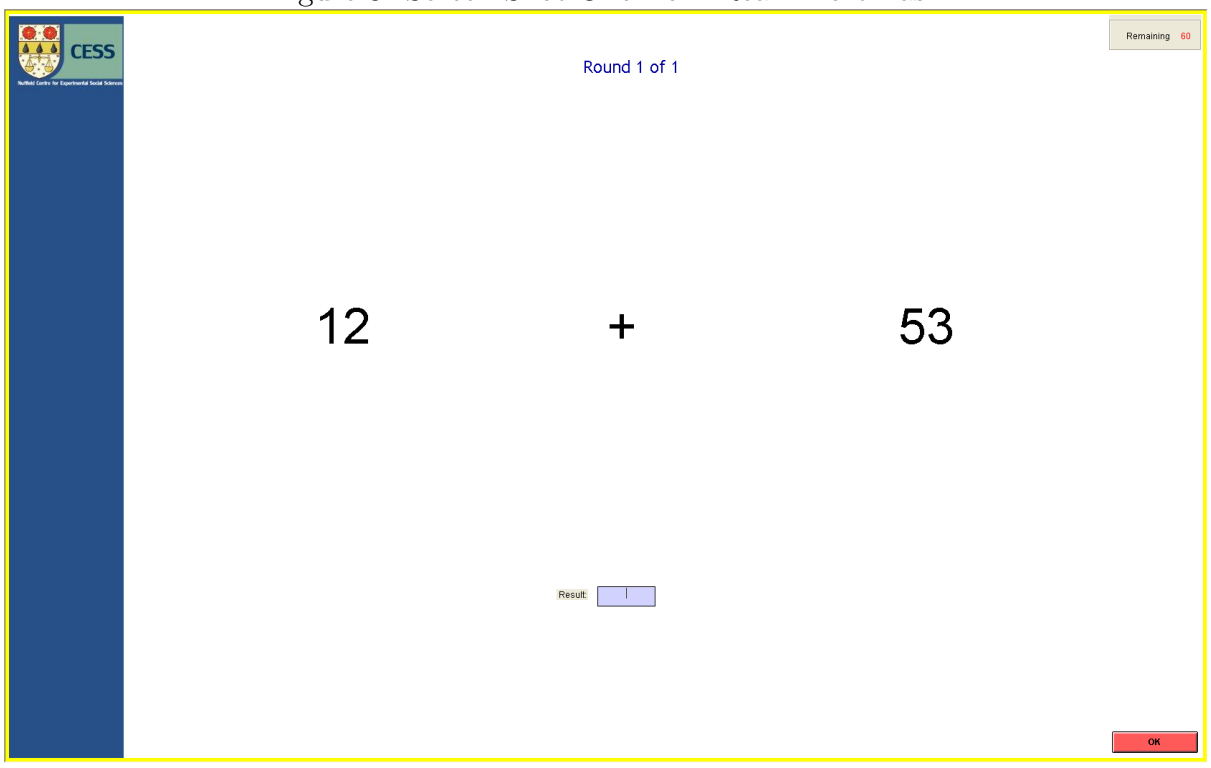


Figure 9: Screen Shot Two from Real Effort Task

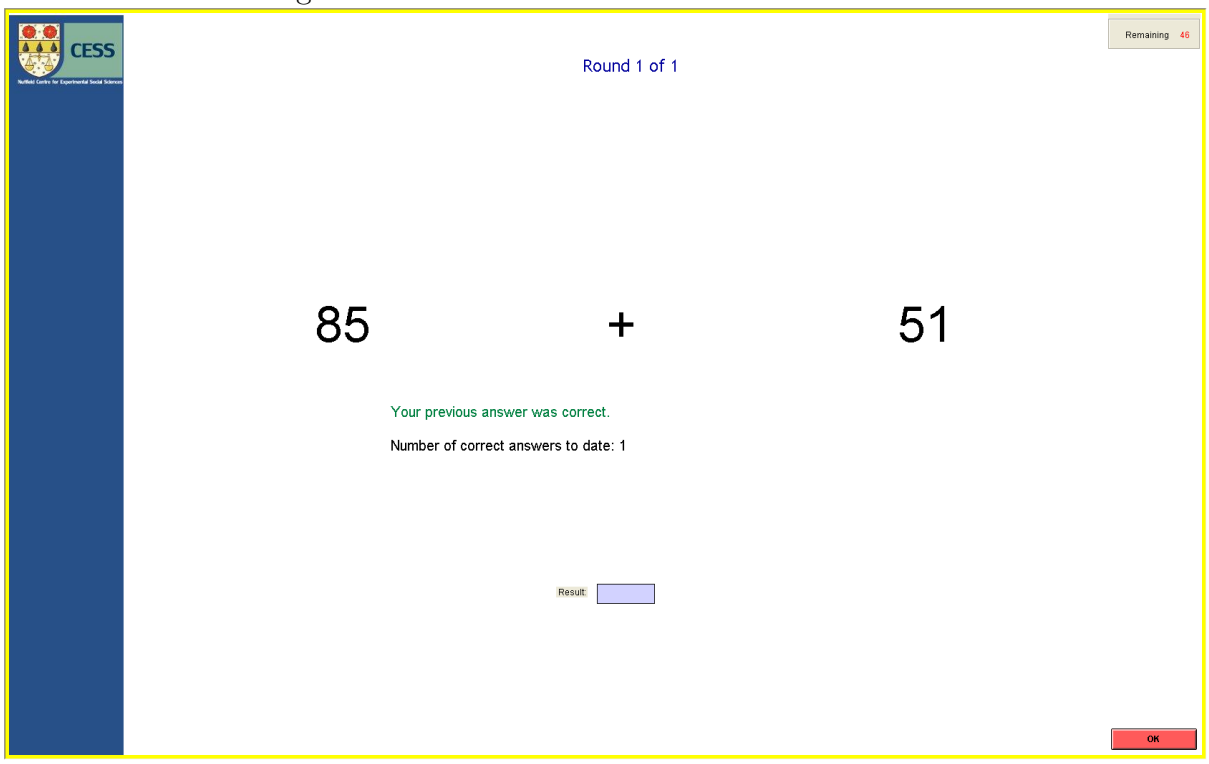


Figure 10: Screen Shot Three from Real Effort Task

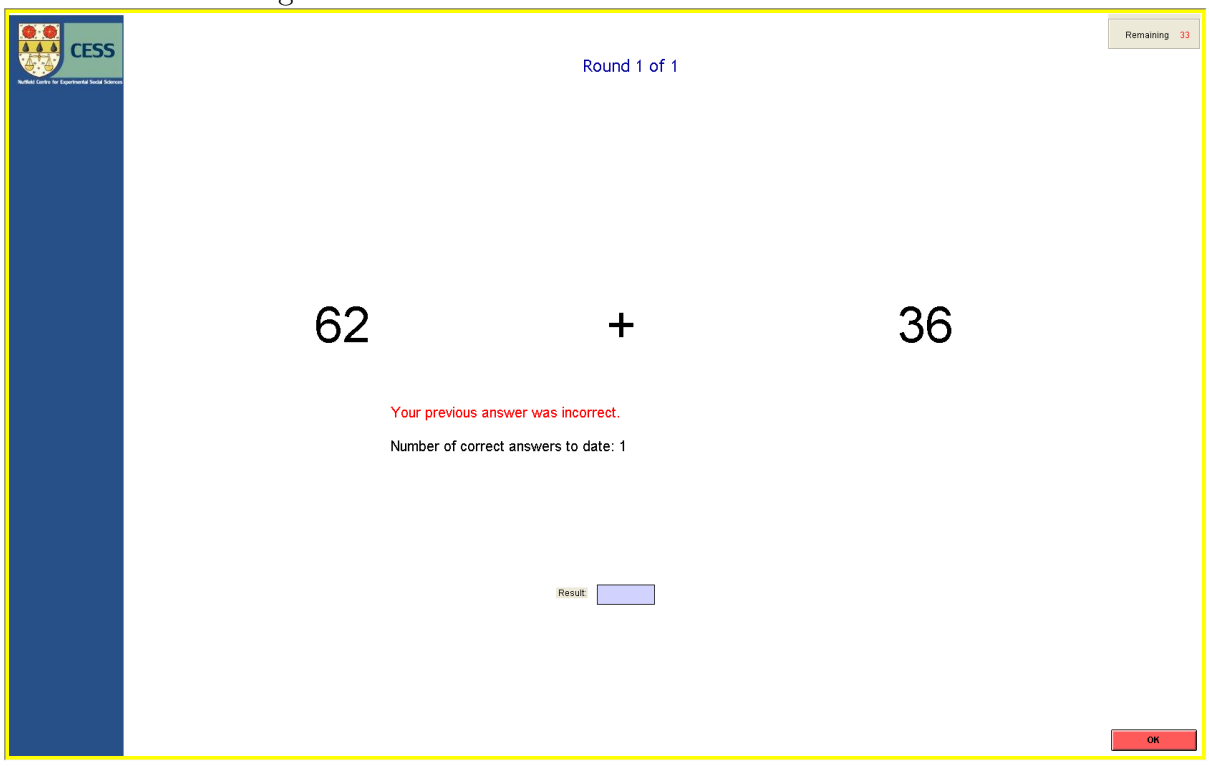


Figure 11: Screen Shot Four from Real Effort Task

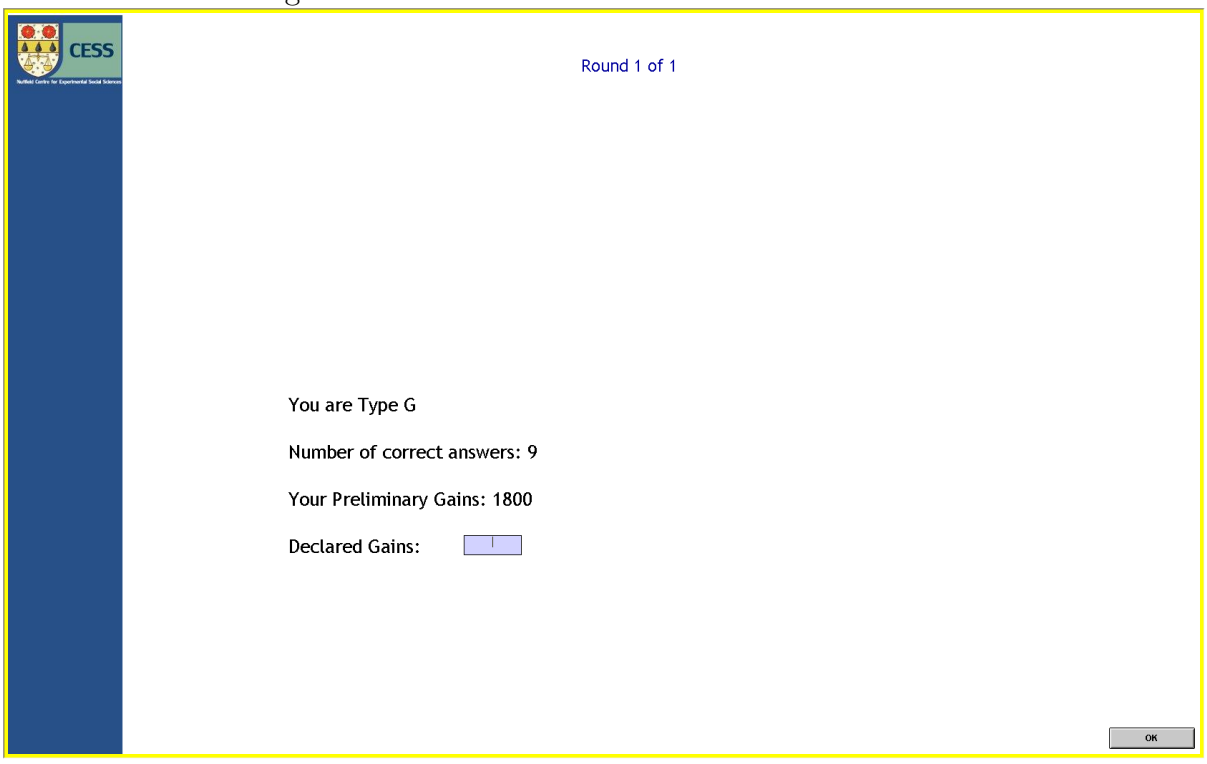


Figure 12: Screen Shot Five from Real Effort Task