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The Meritocratic Illusion

Inequality and the Cognitive Basis of Redistribution

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Can inequality in rewards result in an erosion in broad-based support for meritocratic norms? We hypothesize that unequal rewards between the successful and the rest, drives a cognitive gap in their meritocratic beliefs, and hence their social preferences for redistribution. Two separate experiments (one in the UK and the other in the USA) show that the elite develop and maintain "meritocratic bias" in the redistributive taxes they propose, even when not applied to their own income: lower taxes on the rich and fewer transfers to the poor, including those who failed despite high effort. These social preferences at least partially reflect a self-serving meritocratic illusion that their own high income was deserved. A Wason Card task confirms that individuals maintain their illusion of being meritocratic, by not expending cognitive effort to process information that may undermine their self-image even when incentivized to do otherwise.

Keywords: Inequality; Meritocracy; Redistribution; Populism; Motivated Reasoning; Social Preferences.

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1. Introduction

Democratic societies in the twenty first century rest on the presumption of meritocratic norms and a pro-meritocracy worldview. Meritocracy is not only a cornerstone of the American Dream, but is regularly trumpeted by elites in business, the media as well as by politicians of all ideological stripes (Sandel, 2020). However, recently rising inequality has come alongside rising skepticism of meritocratic governance. Those opposed to a pro-meritocracy worldview have argued, for instance that "the discourse of meritocracy...seems to serve primarily as a way for the winners in today's economy to justify any level of inequality whatsoever while peremptorily blaming the losers for lacking talent, virtue, and diligence" (Piketty, 2020, p.2).[1]

In this paper, we seek to assess how success contributes to the emergence of pro-meritocratic beliefs. In doing so, we analyze not only how these beliefs develop, but also how such beliefs persist, despite evidence to the contrary. We do this through a series of experimental tests. First, we construct an environment in which pro-meritocratic beliefs can develop on potentially selfish grounds. We grant individuals the opportunity to succeed through their own efforts but also allow for the possibility that luck may be the driving force behind success. This enables us to witness the development of pro-meritocratic beliefs that may be based on nothing more than good luck. This may arise, for instance if individuals, for self-serving reasons, convince themselves that their success was merited, even if it was not. Second, we vary the information that individuals receive about whether their success was merited, or based on luck to assess how this information influences the pro-meritocratic beliefs of those who succeeded due to luck. Finally, we implement a task that allows us to observe whether people actively avoid information to maintain their self-serving meritocratic beliefs.

To measure the extent to which potentially selfish pro-meritocratic beliefs can extend into the realm of social preferences, we examine decisions about redistribution. Importantly, these decisions do not affect the decision-maker - our tax setters do not face the taxes that they set. Furthermore, we control for uncertainty by requiring separate tax-rate decisions for effort and luck-based earnings.[2] Our aim is to go beyond selfish rationality and to measure something closer to an

[1] Relatedly, figures A1a, A1b from our survey of Americans show that both meritocratic beliefs and lower preference for redistribution are correlated with income.

[2] We follow the standard definition of social preferences as "the human tendency to not only care about one's own material payoff, but also the reference group's payoff or/and the intention that leads to the payoff" (Carpenter, 2010). Our reference group here is the group of subjects in each experimental session who are affected by the chosen tax rate.

ideological worldview: something that applies beyond narrow payoff-relevancy for the individual.

However, in seeking to establish generalized beliefs by breaking the link between decision-making and direct payoff-relevancy we necessarily lose the ability to test the resilience of pro-meritocratic beliefs to payoff-relevant evidence. To restore this ability we use a method that is standard within Psychology but has not yet been used within Economics: a Wason task (Wason, 1966). A Wason task is a pure test of conditional reasoning.The task asks subjects to indicate what information is required to disprove an argument and penalises those who fail to correctly identify required information. We customize our Wason task by asking subjects to indicate what information is needed to disprove a pro-meritocratic statement. Notice that this may mean that subjects who formed pro-meritocratic beliefs on poor logical grounds (if they succeeded through luck) will be faced with a payoff-relevant tension: on the one hand they may wish to preserve beliefs that favors their own self-image and their chosen social preferences, but on the other hand doing so may require them to fail the Wason task which in turn damages their direct payoff.

We have three main findings. First, while there exist some papers linking meritocratic beliefs to success, and other papers linking success and social preferences (discussed below), ours is the first to bring these three elements together into a single experiment. We show that success – regardless of its source – can increase individuals' proclivity to adopt meritocratic social preferences. Our main result is that not only do social preferences for redistribution shift as a result of success, but they do so in a meritocratic way even if the success was not won through effort and ability. This main result contrasts with the existing literature, which has shown that lottery-task winners redistribute less of luck-based earnings (but not less effort-based earnings), while effort-task winners redistribute less of effort-based income (but not less luck-based earnings).

The reason for this difference has to do with imperfect information that participants have about how their success was achieved. In our experimental design individuals do not always know how much of their success was driven by their effort and ability, and how much was luck. This doubt allows scope for self-delusion. When we introduce full information about the how success was achieved, the meritocratic illusion that lucky income was deserved disappears, leaving us with estimates that are much more consistent with past work. In particular, when we reveal to people in the luck task that they earned their money through the lottery, they no longer redistribute more effort-based income.

While this result identifies the important role of information in the preservation of meritocratic beliefs, we go further to document that (i) the mere possibility that some information may threaten their meritocratic beliefs is enough to make successful participants avoid it (which is possible because of the scope for self-delusion within our experiment) and, moreover (ii) they avoid this information despite it being personally costly to do so. Indeed, our introduction and novel application of a logical reasoning (Wason) task allows us to provide rigorous evidence for the distinct mechanism driving information avoidance: the threat of cognitive dissonance (between meritocratic beliefs and alternative explanations) rather than selfish/rational concerns about one's own self-image or tax burden. The stubborn (and unfounded) persistence of meritocratic beliefs among the successful that we document sheds light on how rising inequality could drive a widening wedge in the beliefs of rich versus poor, resulting in increasing political polarization across the globe today.

We can highlight how this works at an individual level by following the thought process of a hypothetical subject who holds a pro-meritocratic viewpoint. Success in the initial experimental tasks generates a stronger belief that the world is meritocratic whether this success comes through luck or effort, for instance: "I succeeded and in this meritocratic world that means I am deserving." This leads to meritocratic social preferences, for instance: "Those who succeed like me are also deserving and so should face lower taxes." Moreover, this may even allow them to disregard logic even when they are incentivized to do the opposite: "I am willing to lower my payoff to avoid considering a statement that highlights the fact that success does not imply deservingness."

Indeed, we do find that those who deluded themselves into believing that their success was merited (or conversely that their failure was due to luck) are less likely to solve a Wason task aimed at disproving the relevant self-serving belief. Again, this despite the fact that disproving (or not) these statements has no bearing on whether the participant's success was or was not merited, and despite the fact that they earned more by completing the tasks successfully. Furthermore, this variation in solving Wason tasks is not due to unobserved ability in solving these tasks, since we control for participant's overall solving ability by asking them to also solve a task that aims to disprove a statement that disagrees (rather than agrees) with the self-serving belief that may have been generated by their experience in the experiment.

There is a large literature on meritocracy across the social sciences - including in political philosophy (Appiah, 2018, Sen, 2018, Markovits, 2019), psychology

(McCoy and Major, 2007), economics (Arrow et al., 2018), and of course, sociology.[3] Indeed, the term "meritocracy" was invented by the British sociologist (and activist-politician) Young (1958) whose work predicted by almost half a century many of the negative aspects of meritocracy that have dominated recent discussion. Our paper contributes to this extensive literature and shows the benefits of an interdisciplinary approach – the application to taxation and redistribution is not an area that psychologists and sociologists focus on, just as social preferences and cognition are not areas that are a central preoccupation of economists.

This paper is also related to work on attitudes towards redistribution. Romer (1975) and Meltzer and Richard (1981) build on Arrow (1950) to argue that since individuals were self-interested, higher income will result in them preferring lower redistribution. Karadja et al. (2017) provide evidence consistent with this and show that individuals who discover they are richer than they thought, demand less distribution, while both Deffains et al. (2016) and Brown-Iannuzzi et al. (2021) find that a similar effect can be generated in the lab.[4]

Other studies that analyse the impact of the socio-economic and political environment in shaping an individual's redistributive preferences, such as social identity (Klor and Shayo, 2010); political institutions (Alesina and Fuchs-Schündeln, 2007); and macroeconomic shocks (Giuliano and Spilimbergo, 2014). Doherty et al. (2006), Peterson (2016), and Hvidberg et al. (2020) all show the impact of lucky income shocks on distributional attitudes. Cassar and Klein (2019) show that income generated through both a lottery and a tournament influence distributional attitudes and together with Deffains et al. (2016) show that self-serving biases can impact redistribution decisions. However, neither paper experimentally varies information, and so neither shares our focus on how beliefs are maintained in the face of differences in information about the state of the world. Our design allows us to test whether cognitive dissonance is a mechanism underlying the redistributive preferences declared by participants, because of the combination of our information treatments and the Wason Task.[5]

Of course, disentangling broad-based social preferences for redistribution from

[3] Also related is (Lerner, 1980)'s system-justifying *belief in a just world* that "people generally get what they deserve." In contrast, our results suggest a more complex picture, since a cognitive bias may undermine the system by driving polarization. Also see (Bénabou and Tirole, 2006).

[4] Relatedly, Alesina and La Ferrara (2005) find that redistributive preferences depend on expected future income.

[5] We present a more detailed examination of the extent to which our findings differ from Cassar and Klein (2019) and Deffains et al. (2016) in the concluding comments. We argue that while our results are very different this is largely because of a difference in focus and design, and so there is no inconsistency between our findings and those in the literature.

selfish income related reasons is not easy and often has to rely on sophisticated surveys as well as experiments rather than simple observational data. This includes work by Fisman et al. (2020), Alesina et al. (2018) (see Stantcheva (2021) for a recent survey). This work is also related to work that examines whether the source of income inequality matters for its tolerance (Konow, 2000, Cappelen et al., 2007, Karadja et al., 2017). Moreover, Cappelen et al. (2013) find evidence that subjects do distinguish between the source of earnings and are willing to redistribute to compensate for earnings that seem undeserved. Our results suggest that attitudes towards meritocracy, especially by the higher earners in our experiment, seem to act as a limit to these fairness concerns.[6] More recently, Fehr and Vollmann (2020) also suggest that individual tax choices are affected since subjects misperceive success. In contrast, our design focuses on how motivated reasoning may affect *social* preferences for redistribution *and* associated meritocratic beliefs. There is also a related literature in development economics (and elsewhere) that examines the role of fairness when assessing earned vs unearned income in a variety of countries (Jakiela, 2011, Barr and Miller, 2020, Rey-Biel et al., 2011). Almås et al. (2020) in a very large-scale study of subjects in the USA and Norway find evidence of strong cross-national variations in attitudes towards fairness in social preferences.

2. Research Design

Any empirical investigation of whether an increase in income may cause a self-serving meritocratic shift in attitudes towards redistribution has to overcome several challenges and possible confounds. We discuss some of these in Section 4.C (for a more comprehensive list see Table C7 in the Appendix) including the possibility of selection, an in-group bias amongst the rich, a confirmation bias as well as unobserved socio-cultural and other characteristics that can influence attitudes towards meritocracy and redistribution.

Below we sequentially describe the main experimental interventions that we use to overcome the above challenges to examine whether unequal rewards result in a self-serving meritocratic bias in distributional social preferences.

[6] In particular, Cappelen et al. (2017, 2021) show that both linking rewards to actions, as well as certainty about the role of luck – both make individuals more meritocratic. See also Cappelen and Tungodden (2019) for a good overview.

2.A. Experimental Procedure

We ran 44 experimental sessions with over 400 participants at the Economics Laboratory at the University of Warwick in the UK. We supplemented this with an online experiment/survey using a representative sample of American subjects. Protocol and survey details for both experiments are outlined in Appendix B1. In every session, after an initial questionnaire designed to supply us with controls (see Appendix B4, table A2), all subjects participated in two tasks, either of which could earn them money: an *effort task* and a *lottery task.* All subjects knew that after completing both these tasks, a computer would randomly choose (with equal probability) either the effort or the lottery task to determine their earnings.[7]

i) Effort and Lottery Tasks: The first potential income generating task was an *effort task* that required each subject to add as many five 2-digit numbers as possible in 5 minutes (e.g. $14 + 62 + 73 + 39 + 92 =?$). If they correctly solved greater/lower than a threshold number of addition problems (where the unknown threshold was variable and stochastic) they were rewarded with a high/low wage (for simplicity we label them 'rich'/'poor'). The second task that all subjects faced was a random lottery - the *lottery task.* A subject could either become lucky and win the lottery and be paid a high reward (with probability 50%) or turn out to be unlucky and lose the lottery and earn a low wage. While all participants saw their income increase, the high reward in the chosen task (lottery or addition) was £15, the low reward was £5. This lab-induced economic inequality between those who earn a high reward versus those who earned a low reward was designed to be large in both absolute and relative terms.

ii) Full and Partial Information: All subjects were also cross-randomised and assigned to either the full or the partial information treatment. In the *partial information* treatment, subjects were only informed about whether they had earned a high reward (i.e. become 'rich') or low reward. In the *full information treatment*, they were also informed about the source of their reward (lottery or effort task), their performance in the effort task (i.e. the number of correct additions), and the threshold that was used to determine whether they were paid a high or low reward.

[7] A balance exercise showing the distribution of p-values for each control / treatment pair can be seen in figure A2.

iii) Redistributive Social Preferences: After completing these tasks under the above treatments, all subjects were asked to sequentially choose two tax rates. The first *lottery tax* was chosen for those who earned a high reward due to the lottery. They selected a value between 0-100 to indicate how much they believed others who had success during the effort task should transfer to participants who did not. Similarly, an *effort tax* was chosen. There was *no* uncertainty as to the source of income being taxed - i.e. whether it was the lottery or the effort task. This absence of uncertainty in taxation minimizes the prospect of confirmation or availability bias in driving any meritocratic shift in social preferences.

Note also that all subjects were informed that the tax rates implemented in the session would be randomly chosen from the set of tax rates proposed by subjects in the session. They were also informed that subjects would not face the tax rate they themselves proposed. In the event that the rate they proposed was chosen for all other subjects, the tax rate proposed by another subject would be applied to them. Thus, it was participants' *social* preferences over redistribution that were being elicited. Finally, as an attention check, we also asked subjects to propose the tax rate under the condition that they *would* face this rate, if it were chosen for all other participants (see Appendix B). Table A3 shows descriptive statistics of the proposed tax rates for each type of income.

iv) The Wason Card Selection Task: After subjects had proposed their tax rates, they were asked to complete two Wason card tasks. This was incentivized with an additional £2 reward for a correct response on one of the two tasks, randomly chosen (complete details are in Appendix B5).[8]

The Wason card task is a test of logical (conditional) reasoning, widely used in cognitive psychology, but not so far, in economics. It requires subjects to evaluate a conditional statement of the form *"if P then Q,"* using four cards displayed on the screen (Wason, 1966). These cards display the P, not-P, Q, not-Q segments of the statement individually. For each card that has the P portion of the statement on the front, the reverse has the Q portion of the statement, and vice versa. Subjects are tasked with turning over the minimal set of cards needed to demonstrate whether the original statement is violated. From a purely logical perspective, only the combination of the two cards P and not-Q can violate this rule. Accordingly, the correct answer is to check the P card (to see if it has a not-Q on the other side) and the not-Q card (and check whether P is on the reverse side). Therefore,

[8]The experiment then ended with an opportunity to complete an anonymous on-screen comment box prior to payment.

the correct answer for all Wason statements, is to flip the two cards P and *not-Q*.

Under full rationality, correctly solving the Wason logical reasoning task should be completely independent of any content or context. However, our goal here is to examine whether subjects exhibit motivated reasoning given the context of their (random/quasi-random) experimental outcome. To do so, we asked them to evaluate two Wason statements with differing content, as described below. The first was,

> "*If a participant in the experiment becomes rich, then (s)he must have been hard working and hence scored above the threshold.*"

The second, contrasting, statement that each subject saw was:

> "*If a participant in the experiment becomes rich, (s)he must have been lucky and obtained a high lottery payout.*"

The two statements express contrasting worldviews about the role of effort versus luck in success. We hypothesize that subjects would be more motivated to scrutinize the statement that challenges their preferred beliefs more thoroughly, but not the other. This is because the former statement creates a cognitive dissonance between their preferred belief and performing the Wason task correctly, despite the financial incentive. For instance, a high-reward 'rich' subject would be more motivated to reason correctly in the second Wason Card task, while a low-reward 'poor' person would want to do in the first Wason task. As a result, motivated reasoning would result in a systematic gap in performance across the two Wason tasks, as a function of subjects' experimental outcome.

There is also an important role here that we predict for the role of information treatments that participants were subject to. Participants who had full information about the source of their income – for instance, the lottery task – will find it harder to attribute success (theirs or others) to hard work. In contrast, those not informed about the source of their high reward would find it easier to persuade themselves that it was their effort that paid off.

Three additional points are noteworthy. First, the payoff in the Wason task is for the individual subject alone; unlike with the tax rates s/he proposed, no one else benefits from how logically they reason (or not). This rules out *group identity* as the explanation for any gap in performance across the two tasks. Second, the within-person design allows us use the gap in performance across the two logical reasoning tasks as the outcome of interest, hence ruling out individual

differences in *cognitive ability* as an explanation for observed outcomes. Finally, the statements being evaluated do not pertain to any individual subject in particular, and in this sense they are purely hypothetical. To summarize, the combination of the Wason task and the partial information treatment allows us to test for cognitive dissonance with an individual's beliefs shaped by personal experience, as the mechanism for (financially) costly information avoidance.

v) The Online Experiment and the Observer Treatment: We also supplemented our laboratory experiment with an online experiment (protocol details are in Appendix section B2). Here, a representative sample of American subjects could earn a $2 bonus either through winning a lottery or through successfully completing an effort-ability task (Tower of Hanoi puzzle).[9] As a function of the outcomes of these tasks, some subjects won the $2 bonus. Participants in the online experiment were *not* informed whether their payoff was due to winning the lottery, or their performance on the puzzle task.

The online experiment included a treatment arm of *observers* who did not participate in the tasks or earn any bonus. However, like the active participants, they saw all the rules and instructions of the experiment. All subjects (i.e. participants and observers) were then asked how they would redistribute the bonus income between the winners and the rest. Any subject who either exited partway through the experiment or timed out was excluded from our sample.

3. Empirical Approach

We examine whether subjects have meritocratic social preferences and whether their attitudes towards redistribution vary across (a) differing sources of income - be it effort or pure luck and (b) differing information about the cause of their success. In effect, we examine whether there is a gap in distributional social preferences between those who succeed in our experimental tasks and those who fail, and the extent to which this gap is affected by information.

3.A. Measuring Meritocratic Social Preferences

Our primary measure captures the notion that a "meritocracy refers to the idea that whatever your social position at birth, society ought to offer enough oppor-

[9]The recruitment for the experiment was completed using the Prolific app, and we requested a nationally representative sample, according to their definition. This includes a stratification on age gender and ethnicity, in order to match US census information.

tunity and mobility for 'talent' to combine with 'effort' in order to rise to the top." (Littler, 2013, p.1). Accordingly, this measure emphasises that individuals deserve and have a moral right to retain income generated through 'merit' - these rewards are 'just deserts' (Sandel, 2020, p.34). Our experiment measures meritocratic *social* preferences as the tax rate that an individual imposes on high earnings conditional on high effort, earned by others' (i.e. excluding themselves).

We also use a broader notion of meritocracy that encompasses not just attitudes towards income earned through an individual's effort, but also income earned through factors outside their control - i.e. luck. This measure of meritocratic social preferences would be captured by the ratio of the tax on effort over the tax on income earned from the lottery, i.e. $\frac{EffortTax}{LuckTax}$. While intuitive, this measure should be treated with some caution since Rawls (1999, sec. 17) suggests that arguably, that there is an element of luck in how distasteful an individual finds it to put in effort. If so, there is a morally arbitrary element in making a distinction between earnings from a lottery instead of effort.[10]

3.B. Lottery Experiment

In this experiment, each subject had an equal chance to win a high reward through taking part in a random lottery. The specification is,

$$Outcome_{is} = \beta_0 + \rho Lottery_i + \Gamma X_i + \epsilon_{is}$$

$Lottery_i$ is a dichotomous variable indicating whether subject i earned a high income through winning the lottery. This means that ρ represents the causal effect of (lucky) high pay on taxation decisions.[11] X_i is a vector of controls that includes the gender, age, academic department and political orientation of each respondent. ϵ_{is} is the error term for individual i in lab-session s, standard errors are two-way clustered at the state and academic department level throughout. We consider as outcomes both measures of meritocratic social preferences for redistribution, and outcomes of the Wason task.

[10] There are some cases where individuals set both the effort and luck taxes to zero. We impute a value of zero in this case, since this reflects an attitude that there should never be redistribution, which seems to be a meritocratic perspective.

[11] Whenever we discuss parameter estimates throughout the paper and their precision, all references are to two-sided tests.

3.C. Effort Experiment

In the effort experiment the subjects completed a number of addition tasks, and they were paid more if they completed more than a randomly determined threshold of correct answers. Accordingly, we can implement a regression discontinuity design (RDD) that allows us to compare the social preferences of subjects who *just* missed the threshold and earned a low reward with those (very similar) subjects who just made the threshold and earned a high reward.

This comparison allows us to estimate the causal effect of the high income reward on distributional social preferences, controlling for the effort level of the participant. We allow for a continuous relationship between effort and redistributive preferences, and test for a discontinuous jump at precisely the point where there was a discontinuity in pay. If such a discontinuity in preferences exists right at the high-pay threshold in effort, we interpret that as evidence that the difference in pay *caused* the difference in preferences. We implement the RDD using each of the local-linear, polynomial and kernel methods. We employ the local-linear specification as follows:

$$\begin{aligned} Outcome_{is} =& \beta_0 + \rho \mathbf{1}[Effort_i > T_s] + \alpha_0(Effort_i - T_s) + \\ & \alpha_1(Effort_i - T_s) \cdot \mathbf{1}[Effort_i > T_s] + \Gamma X_i + \epsilon_{is} \\ & | -h < (Effort_i - T_s) < h. \end{aligned}$$

Here ρ is the estimated size of the discontinuity at the effort threshold in the relationship between effort and taxation. We interpret this as the causal effect of higher earnings on our main outcomes (tax rates and Wason tasks), for an individual with effort at the threshold. We denote $Effort_i$ as the number of correct tasks completed by respondent i, while T_s is the threshold for high wage in session s. We allow the slope of the relationship between effort and tax choices to differ on either side of the threshold T_s. X_i is a vector of controls that is identical to those in the lottery experiment. h is the bandwidth that we use, and is estimated according to the MSE minimization routine described in Calonico et al. (2014).

3.D. Full versus Partial Information Treatments

One of the core contributions of our paper is to investigate the role of information in the generation of self-serving beliefs. Under full information, past work has identified that lucky winners redistribute less from other lucky winners, but not effort-based ones. Likewise effort-based winners redistribute less from other effort-

based ones, but not lucky ones (Cassar and Klein, 2019). However, outside of the lab people often do not know the extent to which their success is due to luck and effort, and these results might be much different when people are able to delude themselves that they deserved their earnings when in reality they did not.

For instance, if the self-serving (i.e. motivated cognition) nature of meritocratic beliefs was a driver, then we should expect a difference between the partial and full information treatments. In this case, the rich who do not know for sure that they won the lottery (i.e. in partial information treatment), can find it much easier to delude themselves that they got rich due to their 'merit.' In contrast, the rich who are informed that their earnings are due to winning the lottery, may find it harder to continue to delude themselves that their earnings are due to their effort/ability.

Our main interest in the information treatment is to better understand the role of information in sustaining meritocratic beliefs. However, one additional benefit of the information treatment is that it allows us to rule out some alternative mechanisms. Observe that across both treatments, all individuals know whether they earned a high or low reward. Therefore, it is plausible that this in-group affiliation amongst the relatively 'rich' and 'poor' may shape their attitudes towards the taxation of other rich. A low tax imposed on other rich individuals may be because of an in-group bias for other rich.

However, the informational treatments can also be used to examine whether our results are being driven by such a group-identity driven in and out-group bias. In particular, if a group-identity driven in-group bias were driving social preferences, then we should expect the high reward 'rich' to behave in a similar way - whether or not they know the source of their high earnings. A summary of alternative mechanisms and how they can be ruled out appears in table A1.

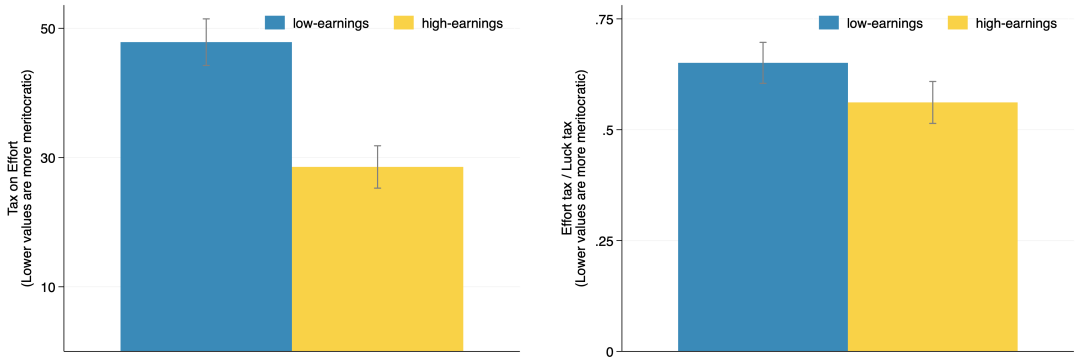
4. Results: Does Income Cause Meritocratic Social Preferences?

4.A. Results from the Lottery Experiment

We start with an analysis of the lottery experiment.[12] The results show that winning the lottery changed subjects' perceptions of what is a fair distribution - social preferences became more meritocratic.

Figure 1a demonstrates that lottery winners taxed effort at a lower rate than non-lottery winners. In figure 1a the gap is over 20 percentage points, while in 1b it is about 10 points. This is consistent with table A4, which suggests

[12]The results presented in this section pool the partial and full information treatments, and later we explore heterogeneity by information.



(a) Redistribution of effort income **(b)** Redistribution: effort-lottery ratio

Figure 1: Lottery earnings makes social preferences more meritocratic

Note: The figure graphs the impact of winning a lottery on our two main measures of preferences for redistribution. In panel (a) these preferences are measured as the tax rate that an individual imposes on high effort task income, earned by others (i.e. excluding themselves). In panel (b) these preferences are measured as the tax rate that an individual imposes on high effort task income *relative to lottery income*, earned by others (i.e. excluding themselves). Mean choices of individuals randomly assigned to high-earnings is in pink, and mean choices of individuals randomly assigned to low-earnings is in blue. 90% confidence intervals are plotted for each. Each graph presents means plus residuals after conditioning out the standard set of controls, described in sections 3.B and 3.C.

that lottery winners taxed effort 21 percentage points lower than lottery non-winners (column 1; $p < 0.01$) or about two-thirds of a standard deviation (column 3; $p < 0.01$).[13] Our alternative meritocratic measure suggests a similar shift. For instance, table A4, column 2 presents a 10% decline in effort tax relative to taxation on lucky earnings (p=0.078), which after normalisation (column 4) translates into a difference of more than a fifth of a standard deviation ($p = 0.078$). This gives us a consistent message: earning more money (even in a lottery) makes a person more generous towards high-earning subjects by redistributing less of their income to the rest.

While more income may affect subjects' views of what is fair, we also examine other possibilities. For instance, is it possible that money is not the cause of the effect, and that even neutral observers would share a similar meritocratic bias? To assess this possibility, we also report our results from our online (US-based) experiment which included an observer-treatment. Our specification is identical to earlier, except that given the regional heterogeneity of our representative sample, we control for state fixed effects and cluster standard errors by state. While we replicated our core luck (lottery winners vs lottery losers) result with a more representative group of Americans (table 1, column 1, estimate = -14.44; $p =$

[13]Table A5 shows robustness to controlling for effort in the effort experiment. This is to mitigate concerns that that the proposed tax rates are influenced by the exerted effort irrespective of the outcome of the lottery.

Table 1: Online experiment with observer treatment

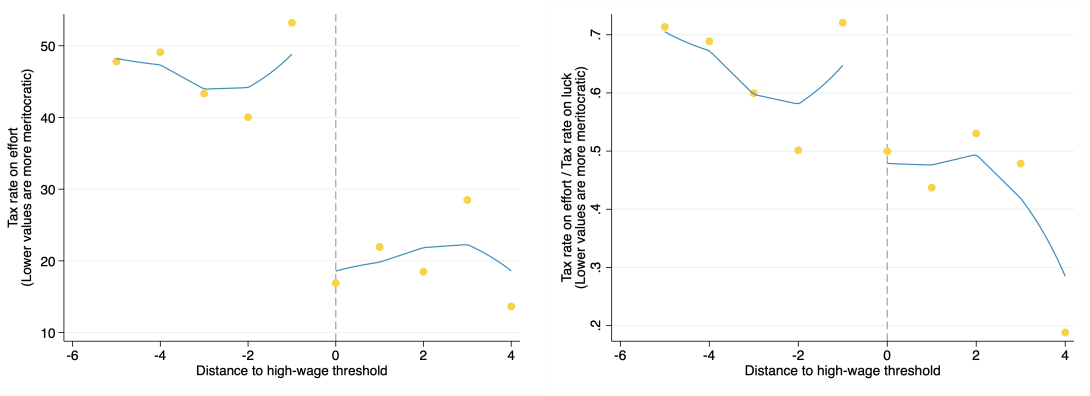
Dependent Variable	EffortTax			
Sample	Lottery Winners and Losers (1)	Lottery Winners and Observers (2)	Lottery Losers and Observers (3)	All (4)
Lottery Winners	-14.44**	-15.85***		-12.12**
	(5.603)	(5.444)		(5.695)
Lottery Losers			4.016	4.132
			(8.366)	(7.489)
Age	✓	✓	✓	✓
Gender	✓	✓	✓	✓
Political Attitudes	✓	✓	✓	✓
State FE	✓	✓	✓	✓
Observations	219	177	152	274
R-squared	0.264	0.295	0.298	0.234
Dependent Variable Mean	40.51	37.20	44.14	40.45

Note: Standard errors are clustered at the state level. ***, **, * represents statistical significance at the 1%, 5% and 10% levels respectively. The table presents results from the online experiment. The table suggests that lottery winnings make people more meritocratic. These preferences are measured as the tax rate that an individual imposes on high effort task income, earned by others (i.e. excluding themselves). Lower values mean people are more meritocratic. Individuals were assigned to either be lottery winners, lottery losers or observers. Column 1 compares high to low-earners, column 2 compares high-earners to observers, column 3 compares low-earners to observers, and column 4 compares high and low-wage to observers.

0.014), our focus is on the treatment arm of observers.

Column 2 examines a comparison between the winners and the observers, while in column 3 we compare those that participated in, but lost the lottery, to the observers. The result is nearly identical using the observers as the control group (column 2, estimate=-15.85; $p = 0.007$), since observers behave very similarly to lottery losers (column 3, estimate=4.02; $p = 0.634$). Column 4 presents a joint-sample specification, and the results are again nearly identical (estimate=-12.12; $p = 0.040$). Taken together, these results suggest that winners of a random lottery develop social redistributive preferences that are quite different from both lottery losers and impartial observers.

These results are quite surprising, since they differ considerably from the literature. Past work has demonstrated that lottery winners redistribute less luck-based earnings, but not less effort-based earnings (Cassar and Klein, 2019), while in our context even the ratio of effort-to-luck based redistribution declines, a marked deviation from past work. We argue that this is because when there is scope for people to delude themselves that their income was earned, they do so. If this is true, then we should expect the results to be driven by winners in the luck exper-



(a) Redistribution of effort income **(b)** Redistribution: effort-lottery ratio

Figure 2: Merited earnings makes social preferences more meritocratic

Note: The figure plots mean tax rates chosen in the effort experiment for our two main measures of preferences for meritocratic redistribution. In panel (a) these preferences are measured as the tax rate that an individual imposes on high effort task income, earned by others (i.e. excluding themselves). In panel (b) these preferences are measured as the tax rate that an individual imposes on high effort task income *relative to lottery income*, earned by others (i.e. excluding themselves). Each subfigure plots mean tax choices against the number of correct addition problems solved relative to the threshold determining high-earnings. The dashed line at 0 represents the threshold, so the right of the dashed line represents high-earnings individuals, and to the left is low-earnings individuals. Each graph presents means plus residuals after conditioning out the standard set of controls, described in sections 3.B and 3.C.

iment who do not know that they were assigned to the lottery. We could compare these winners to winners from the effort-task as long as they too develop more meritocratic preferences.

4.B. Results from the Effort Experiment

Before turning to the role of information, we consider the effort experiment for an additional test of whether income shocks can shift a subject's distributional preferences.[14] We do this by implementing an RDD, where we exploit the discontinuity in rewards earned, around small differences in the number of questions solved. The results are displayed graphically in figure 2a and 2b respectively. In both cases there is a large discontinuous shift in social preferences towards meritocracy at precisely the point along the effort distribution that people earn more money.

The effect on our primary measure of meritocratic social preferences (i.e. the effort tax) is particularly stark as we observe individuals reduce taxation on earned income by over 30 percentage points in our experiment (table A6, column 1, estimate = -30.18; $p < 0.01$). These estimates are robust to different bandwidth choices (columns 4-10 of table A6), and extend to more or less parameterization

[14] As in the previous subsection, the results presented in this section pool the partial and full information treatments.

(columns 2-4 of table A6). The effect on the ratio of effort tax to luck tax is very similar (table A7).

4.C. Why do the Rich become Meritocratic?

There are several possible reasons why an increase in income would make an individual's social preferences more meritocratic. We discuss some of these mechanisms in light of our experiment.

First, is the possibility that talented and hardworking individuals are over-represented amongst the successful and rich. These people may be hardworking because they already held a meritocratic worldview. While possible, our research design explicitly excludes this possibility since we examine the impact of *random* income shocks on an individual's distributional social preferences. Second, narrow self-interest alone could ensure that those with higher income favour less redistribution. However, our research design precludes this possibility as well, since a subject's choice of tax cannot affect their own income. Third, arguably higher income could alter an individual's group identity or loyalty to other successful and rich individuals. In other words, a group/tribal affinity towards the rich may *indirectly* affect a subject's distributional social preferences, such that they tax fellow members of their group at a lower rate. We further investigate this possibility in the section *4.C.iii.*

Finally, an individual may be motivated to choose social preferences in a way that is consistent with their desire to maintain their self-image (Bénabou and Tirole, 2016, Rabin, 1994). Given the pervasive nature of meritocratic norms in contemporary society, successful individuals may persuade themselves that they deserved their rewards, that effort pays-off, and accordingly adopt meritocratic beliefs. Furthermore, we observe that subjects may find it easier to maintain this belief, and the associated meritocratic social preferences may be easier to maintain in the partial information treatment. In the next section we further investigation this channel and describe our results.

i) Information Provision and the Meritocratic Shift As we discussed above, one explanation for our surprising baseline lottery results is that individuals delude themselves that they deserved their success, even when they did not. Recollect that in the *partial* information treatment, subjects were not informed about the source of their income (i.e. lottery or effort). In the absence of information, winners may persuade themselves that they deserved the boost in their income. Moreover, this self-serving belief would be reflected in the adoption of meritocratic

social preferences. For instance, once you find out that you got rich by winning the lottery, it becomes especially hard to persuade yourself that you merited your high income. Therefore, once a winner finds out that their income was due to a lottery win, we should *not* expect them to adopt meritocratic social preferences. This mechanism can be ruled out in past work, due to features of the experimental design.

In our case, we randomly varied information to highlight this mechanism. To investigate the extent that lottery winners delude themselves that they were deserving, we compare lottery- and effort-task winners who were exposed to full and partial information. To do so we employ the following empirical specification:

$$\begin{aligned} Tax_{is} =& \beta_0 + \rho Lottery_i \cdot FullInformation_s + \alpha_0 Lottery_i \\ &+ \alpha_1 FullInformation_s + \Gamma X_i + \epsilon_{is} | Earnings = high \end{aligned}$$

Everything is as before, except here we condition the sample of those who earn a high reward. Our focus is on the interaction between full information and lottery earnings, since that is where we expect information to be most relevant. In the absence of information on how they got rich, we expect that lottery winners become meritocratic on the basis of a self-serving illusion that their earnings were merited. Informing these subject that their high income is because they are lucky lottery winners, may make their distributional preferences less meritocratic (i.e. higher tax rate on effort income). We would expect that information would have little effect for those that actually did deserve the money, and that the source of income would not matter whenever people did not know the source of income. Our hypothesis is therefore that $\rho > 0$, while $\alpha_0 = \alpha_1 = 0$.

Our results in Table 2 provide us with evidence that is consistent with this behavioural mechanism. The table includes only individuals who earned a bonus either through the effort or luck task. Interestingly, under partial information, those that earned money in the effort task were not more meritocratic than lottery winners (e.g. table 2 row 3, column 2, estimate = -0.12; $p = 0.978$). Likewise, being exposed to full information in the effort task had no meaningful effect on meritocratic preferences (e.g. table 2 row 2, column 2, estimate=-6.6; $p = 0.198$). Nor should it, since we expected these subjects to believe they deserved the money anyway. However in contrast, we find a robust and consistent decrease in the meritocratic preferences (i.e. an *increase* in tax on effort) of lottery winners once they learned the source of their income (e.g. table 2 row 1, column 2, estimate =

Table 2: Information about income source on meritocratic preferences

Sample	High-earners in either lottery or effort experiment					
Dependent Variable	Tax on Effort Income			Effort tax over Luck tax		
	(1)	(2)	(3)	(4)	(5)	(6)
Full Information x Lottery Experiment	13.15***	12.18**	12.59*	0.339**	0.328**	0.330*
	(4.341)	(4.806)	(6.428)	(0.155)	(0.156)	(0.160)
Full Information	-7.554*	-6.616	-7.030	-0.175	-0.164	-0.165
	(4.370)	(4.967)	(5.386)	(0.119)	(0.119)	(0.121)
Lottery Experiment	2.959	-0.123	-3.092	-0.0510	-0.0868	-0.104
	(3.461)	(4.353)	(5.208)	(0.0971)	(0.106)	(0.0986)
Effort: Linear		✓			✓	
Effort: Cubic polynomial			✓			✓
Gender	✓	✓	✓	✓	✓	✓
Age	✓	✓	✓	✓	✓	✓
Political Attitudes	✓	✓	✓	✓	✓	✓
Academic Department	✓	✓	✓	✓	✓	✓
Observations	162	162	162	162	162	162
R-squared	0.212	0.234	0.246	0.218	0.228	0.229
Dependent Variable Mean	24.33	24.33	24.33	0.524	0.524	0.524

Note: Standard errors are two-way clustered at the session and academic department level. ***, **, * represents statistical significance at the 1%, 5% and 10% levels respectively. The table shows that information about income source influences the meritocratic bias. In columns 1-3 meritocratic preferences are measured as the tax rate that an individual imposes on high effort task income, earned by others (i.e. excluding themselves). In columns 4-6 these preferences are measured as the tax rate that an individual imposes on high effort task income *relative to lottery income*, earned by others (i.e. excluding themselves). The table presents results on treatment effect heterogeneity by whether respondents randomly received partial or full information about their income. All respondents in the table were high-earners, and we compare tax rates by income source, and information about income source. Columns 2 and 4 include a linear effort control, while columns 3 and 6 add a cubic polynomial in effort. In each cases effort is measured by the number of correctly completed addition tasks.

12.18; $p = 0.020$).[15]

Providing information to lottery winners on how they became winners (i.e. lottery or effort), resulted in a shift in social preferences making them *less* meritocratic[16]. This suggests that the large meritocratic shift that we initially observed in figure 1a was being driven almost entirely by lottery winners who, under partial information, adopted meritocratic social preferences, and made decisions as if their earnings were merited. In other words, once we revert to full-information, as in past work, our results more closely reflect theirs.

This suggests that our findings imply a crucial role for information about the source of an individual's success. On the one hand, this could be quite important

[15]Table A8 shows robustness to controlling for effort in the effort experiment. This is to mitigate concerns that that the proposed tax rates are influenced by the exerted effort irrespective of the outcome of the lottery. Likewise in table A9 we add earnings threshold fixed-effects, for similar reasons. None of these additional controls influence the interpretation of the results.

[16]Lottery results by full/partial information are in table A10 and figure A3. The (lack of any) effect of information in the effort experiment can be seen in figure A4. These results are all consistent with table 2.

if outside of the lab many people do not have complete information about the roles of luck and effort in their success. On the other hand, in the long-run people may be exposed to enough information that the meritocratic illusion amongst the lucky is unsustainable. We explore this further using the Wason task.

ii) Motivated Cognition and the Wason Card Task: Outside of a lab environment people are constantly receiving new information and updating their beliefs accordingly. How then, might the gap in meritocratic beliefs persist? The Wason Task looks directly at the tension between the truth and the self-serving beliefs highlighted by the information treatment. Given that information can undermine the illusion that success was merited when it was not, we are interested in testing whether people will avoid this type of information. In this case we want to see how the cognitive dissonance generated by the tension described above is resolved. When individuals are faced with a decision between considering information inconsistent with their beliefs and earning more money, what will they do?

We investigate this cognitive dissonance using the Wason Card Task. Observe that if people avoid information to protect their meritocratic beliefs, we should expect a subject's performance on the Wason Task to (a) differ across Wason Task 1 versus Task 2 in the partial information treatments (b) be relatively similar across Wason Task 1 and Wason Task 2 in the full information treatment. As we have already seen, there is no need to protect a meritocratic belief in the full information treatment, since in that case it has already been undermined. In other words, there is no sense for someone to avoid information that they have already processed.

Indeed, in the absence of information about the cause of success, it is much easier for lucky individuals to maintain a self-image of being meritorious and deserving ('rich' would delude themselves income due to effort and the 'poor' that they got unlucky). We might expect such a person to be much more likely to use cognitive reasoning to critically evaluate any statement that is unpalatable for their meritocratic self-image (Dawson et al., 2002). Accordingly, we hypothesize that Wason Task 2 is much more likely to be solved by the 'rich' (who are likely to find the hypothesis implicit in the statement more distasteful). Therefore, for the rich we should expect $W_2 - W_1 > 0$, where the proportion of subjects with high earnings who correctly solve the first Wason task is W_1 and for Task 2 is W_2. For similar reasons, Wason Task 1 is more likely to be solved by the relatively 'poor' and we should expect $W_2 - W_1 < 0$. Notice that an appealing aspect of this empirical design is that we examine *within-person* differences in performance

across two (analytically identical) Wason Tasks.

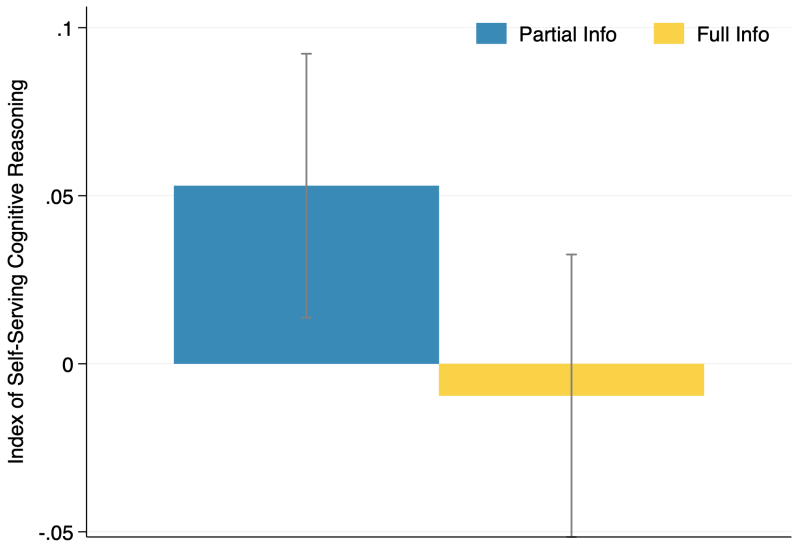


Figure 3: Quality of Cognitive Reasoning to Protect Self-Image

Note: The figure plots the tendency of subjects to solve the Wason tasks in a self-serving manner. The y-axis captures the asymmetry in cognitive reasoning between the two tasks, which may differ when a subject's self-image is at stake, i.e. $I = |W_i - W_j|$, where $i, j \in \{1, 2\}$. For the low earnings subjects this means that they expend more effort to disprove the meritocratic statement (Wason Task 1) relative to Wason Task 2, i.e. $W_2 - W_1 < 0$. For the high earnings subjects this means the opposite $W_2 - W_1 > 0$.

Our results illustrated in Figure 3 provide some evidence that people strategically avoid considering viewpoints that are inconsistent with their self-serving beliefs. On the y-axis is an index I that captures the asymmetry in cognitive reasoning between opposing statements, where $I = |W_i - W_j|$ where $i, j \in \{1, 2\}$. Observe that it is under the partial information treatment that the asymmetry in cognitive reasoning is much higher. This is because it is precisely when there is an absence of information on their source of income that (i) the rich find it much easier to delude themselves that their high earnings were merited and the (ii) relatively poor persuade themselves that were deserving but merely got unlucky by losing the lottery (see also figure 3 and table A11 columns 1 & 2).

The low-earners do much better at disproving the meritocratic statement (Wason Task 1), while the high-earners are better at disproving the unmeritocratic statement (Wason Task 2). This is reinforced in the more formal estimates, which show that the high-earners do much worse at disproving the meritocratic statement in both the lottery (table A11 column 1, estimate = -0.248; $p = 0.015$) and effort experiment (table A11 column 2, estimate = -0.498; $p = 0.015$) whenever information is incomplete. However, things change fairly dramatically under full information.

Under full information it is much harder for subjects to delude themselves, and we would expect a much smaller difference in the expenditure of cognitive resources across the two Wason tasks. This is precisely what we see in the above figure 3 as well as table A11 columns 3 (estimate = 0.0195; $p = 0.723$) and 4 (estimate = -0.087; $p = 0.915$).[17]

Overall, the results from the Wason task are striking for a number of reasons. First, we see that even beliefs outside of the context of the experiment have shifted, and not just beliefs about the experiment itself. Second, the results reinforce the importance of information in the persistence of divergent beliefs between those who are more and less successful. Indeed, the incorrect formation by the lucky of meritocratic beliefs generates a cognitive dissonance, between the true state of the world and the preferred one. And the Wason results suggest that to resolve this cognitive dissonance people are willing to incur financial losses in an effort to protect these beliefs, by endogenously avoiding viewpoints that might be inconsistent with them.

iii) Group Loyalty?: Here we examine the role of group loyalty effects in driving attitudes towards taxation. This is because such loyalty effects due to group identity - have the potential to confound our preferred explanation based on motivated reasoning. This is because the high-earning 'rich' (or poor) subjects may identify with other similar rich (respectively, poor) subjects, due to some kind of group/class based loyalty. This may give rise to an in-group bias, wherein 'rich' subjects impose relatively low taxes on effort income of other rich and the poor impose high taxes on the rich because of an out-group bias. In this case, the patterns of taxation may look very much like meritocratic social preferences – though in fact, these may merely be reflecting an in-group/out-group bias.

However, our results in Section *4.C.i* and *4.C.ii*, together suggest that this particular mechanism is unlikely. Below, we briefly explain how.

(1) Partial vs. Full Information treatment: We note that, in both these treatment, all subjects know whether they are 'rich' or 'poor'. The only difference is that those in the partial information treatment, do not know how they got rich/poor, i.e. through lottery winnings or performance in the effort task.

If the 'rich' were behaving as a group, we should expect *all the rich to propose very similar (low) taxes* on effort income - whether or not they know the source of their high earnings. In other words, we should not see any difference in the tax

[17]Figure A5 shows the same result on the subset of lottery winners, and again, the pattern is the same.

rates chosen by the rich under the partial versus full information treatment. However, as we can see from Table 2, the behaviour of the 'rich' under full information is significantly different from the rich in the partial information treatment.

(2) The Wason Task: Our results from subsection *4.C.ii* also show a pattern that is remarkably consistent with (1) - the 'rich' do not behave as if in a group. In particular, here too we observe that the 'rich' behave very differently from each other - depending on whether they have information on the source of their income. It is the full information group that exhibits weaker cognitive reasoning in evaluating the claim that the rich are meritocratic.

Together (1) and (2) rule out the possibility of group identity driving our results. In Table C7 in the appendix, we briefly discuss a subset of other biases that we rule out using our experimental design.

5. Concluding Comments

Our results display a clear pattern across two independent experiments with two very different participant pools: higher inequality results in the successful, high-earning beneficiaries demonstrating a meritocratic bias. This bias provides a rationalization that enables individuals to justify their unequal rewards as being merited, even when those rewards are the result of pure chance. We can see strong evidence of this bias translating into a wedge between the high and low income subjects - in their meritocratic attitudes and the appropriate level of government redistribution. The results show us that higher earners cognitively process only information that boosts their meritocratic self-image and ignore evidence to the contrary.

Our work extends earlier work by Cassar and Klein (2019) who show that lottery winners engage in lower levels of redistribution from their lottery earnings, and those who earn from effort redistribute lower levels of effort-based income. In their paper there is no variation in information, so those in the lottery experiment do not redistribute more in the effort experiment, and vice-versa. In our context we leave the source of income ambiguous in our baseline setting and so generate different results. In particular, we find that lottery-winners even redistribute less effort-based earnings, giving rise to the possibility that people convince themselves that their earned income is deserving even when it comes entirely from luck.

Deffains et al. (2016) do include imperfect information in their experimental setting. They find that successful participants engage in lower levels of redistribution while unsuccessful participants redistribute more. However, they are not

able to pin down the role of information because this is not experimentally varied in their research design. Further, they observe redistribution as a whole, but do not observe redistribution specifically for earned and unearned income. Accordingly, since their study is not seeking to understand meritocratic beliefs it is not surprising that it is difficult in their design to distinguish between preferences for equality and meritocratic preferences.

In our work, in contrast to Cassar and Klein (2019), Deffains et al. (2016) and the related literature described in the introduction, we are specifically attempting to understand meritocratic beliefs and as such we directly vary the information regarding the source of earnings. Our findings are consistent with the earlier literature, and help to rationalize the large difference between our main results and those presented in Cassar and Klein (2019) and elsewhere. We find that when people are given information about the source of their earnings, they are not able to maintain the incorrect self-serving belief about how deserving they are of their earnings. In particular, when we reveal to people that they earned their money through the lottery, they no longer redistribute more effort-based income.

At first glance this may seem like an optimistic result, as it identifies the important role that information can play in breaking down polarizing self-serving beliefs. It is a novel finding in the literature, and only possible with our introduction of randomized ambiguity in how income was earned. However, when people so readily update their belief in the face of information that reveals the true source of their income, this introduces a new question: do polarizing beliefs persist, and if so, how?

Using the Wason task, we provide the first evidence that people avoid allocating cognitive resources to issues that are inconsistent with their self-serving (and often incorrect) beliefs. The incentivized Wason task allows us to showcase the extent to which the beliefs formed in the earlier experiment is maintained even when it results in failing the task and thereby reducing the overall payoff in the experiment. This generates a direct tension between the desire to consider both a belief that enhances self-image, and an alternative belief that enables success in the Wason task and a resulting boost to payoffs. This is very much in the tradition of the cognitive dissonance literature which speaks to the difficulty of maintaining two competing sets of beliefs. The implication of our findings is that even though information updating does take place, it is very unlikely to occur in practice unless the information is made extremely salient. This implies that despite our evidence on belief updating, once beliefs are established they are far more likely to persist over time

The consistency of our results across different settings and subject pools allow us to hypothesize that a meritocratic bias is likely to exist outside the confines of experimental settings. If so, this raises the concern that the elite's meritocratic bias is likely to reinforce its narrow self-interest when they lobby for policies. For instance, the elite's meritocratic bias is reflected in the view that individuals' "deserve what they get erodes solidarity and demoralizes those left behind by globalization" (Sandel, 2020). This may further erode support for redistributive policies that ameliorate the effects of inequality. Indeed, this is reflected in the views across the political spectrum and is arguably a factor behind the populist discontent and the rise in polarization that has characterised much of the developed world in recent years.

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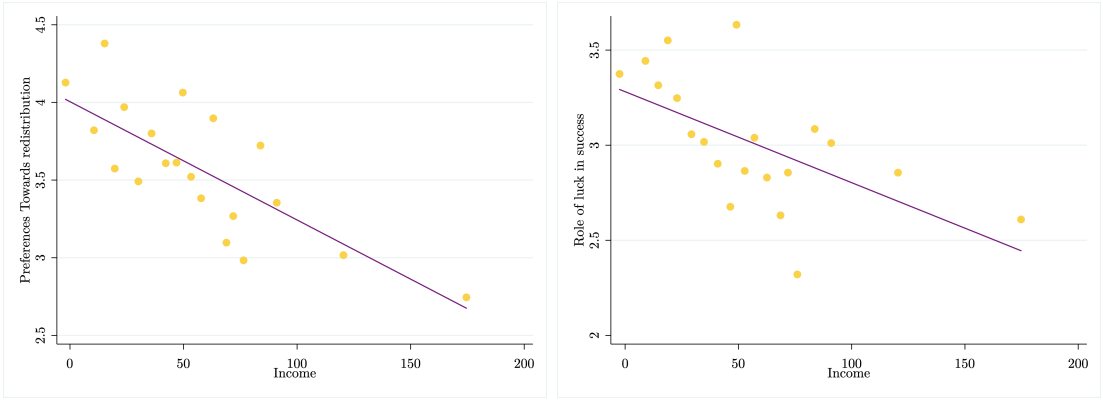
A. Additional Tables and Figures

Table A1: Possible confounds and empirical solutions

Confound	Concern	Empirical solution
Culture and Meritocratic Beliefs (A)	Differences in meritocratic beliefs across individuals due to culture, geography or experience that do *not* affect the incentive to put in effort.	Random assignment of subjects into treatment.
Culture and Meritocratic Beliefs (B)	Differences in meritocratic beliefs across individuals due to culture, geography or experience that *affect the incentive to put in effort*. Those who believe that effort important for success will be over-represented amongst successful, as compared to those who believe that luck is the main driver of success. Such individuals may have very different attitudes towards taxation than those who work hard during the experiment and achieve high incomes.	Examine impact on distributional preferences using (i) Lottery task (winners of lottery randomly assigned); (ii) Regression Discontinuity Design for Effort task.
Group Identity	Individuals have a group or tribal loyalty (in-group versus out-group bias) that is reflected in choice of tax rates. The rich impose lower tax rates on effort income of other rich due to an in-group loyalty that reflects altruism towards members of their own-group.	(i) Tax choices of rich should not differ across partial or full-information treatment; (ii) There should be no difference in the ability to correctly solve the Wason task by the rich across the full and partial information treatment.
Inequality Aversion	If becoming rich makes individuals less averse to income differences due to effort, then they will choose lower taxes on effort income, as compared to the relatively poor.	This is ruled out because the choice by the rich to tax effort income differs across partial and full information treatment.
Confirmation Bias	Only encode information that is consistent with prior that the rich are hardworking and should be allowed to retain their income and hence should be taxed at a lower rate. All contradictory evidence that the rich got there by virtue of being lucky will be ignored	This is ruled out by design since there is no uncertainty on source of income (effort or lottery), when individual chooses to tax income earned by others'.
Availability and Representativeness (Salience of meritocracy)	In a meritocratic environment the successful and rich are presumed to deserve their money. Subject uses a mental short cut that ascribes to success and riches to hard work and merit and taxes accordingly.	This is ruled out by design since there is no uncertainty about the source of income (in the full information treatment).
Motivated Cognition	Incentive to maintain positive self-image gives the 'rich' a self-serving incentive to not process any information that may hurt self-image of being meritocratic. Accordingly, they adopt meritocratic social preferences for redistribution.	Experimental design of this paper including (i) Difference between partial and full information in Social Preferences (ii) difference in performance of Wason Task across Partial and Full Information

Note: This table briefly summarizes alternative mechanisms and also how our empirical strategy rules out various potentially confounding behavioural explanations.



(a) Income and preferences for redistribution

(b) Income and attitudes of the role of luck and effort

Figure A1: Individual income, redistribution and luck vs. effort in American online sample

Note: The figure plots a scatterplot and fit line to demonstrate the relationship between income and attitudes towards luck and effort and attitudes towards redistribution. In each case we difference out age and gender, and each dot represents bin-level mean values. We plot 20 equidistant bins for each subfigure.The redistribution question asked respondents: *How would you describe your attitude towards economic policy?* (very right-wing; right-wing; moderate; left wing; very left wing). The luck / effort question asked respondents: *Consider the case of one of the richest persons in the world, Harvard- educated Lloyd Blankfein, the CEO of Goldman Sachs. Indicate the extent to which luck or talent/effort played a role in his becoming one of the richest persons in the world.* (Luck played no role - it was all effort / ability; Luck played a smaller role than effort / ability; Luck and effort / ability were roughly equally important; Luck played a larger role than effort / ability; Effort / ability played no role - it was all luck). The income question asked *What was your income, before taxes, over the past year (in 1000s)?*

Table A2: Summary Statistics

	Mean (1)	Variance (2)	Min (3)	Max (4)	N (5)
Panel A: Lab experiment Outcomes					
Tax on Effort	38.68	31.97	0	100	416
Tax on Luck	61.43	32.65	0	100	416
Wason 1 (meritocratic statement)	0.18	0.38	0	1	416
Wason 2 (unmeritocratic statement)	0.23	0.42	0	1	416
Wason gap ($W2 - W1$)	0.05	0.353	-1	1	416
Panel B: Lab experiment Independent variables					
Payed based on effort	0.514	0.500	0	1	416
Won lottery	0.50	0.50	0	1	416
Effort was above threshold	0.33	0.47	0	1	416
Effort threshold	14.64	0.61	13	15	416
Distance to effort threshold	-1.76	5.01	-12	31	416
Received full information about income source	0.50	0.50	0	100	416
Gender (female = 1)	0.59	0.49	0	1	416
Age	21.46	3.00	18	51	416
Panel C: Online experiment					
Tax on Effort	40.45	41.95	0	100	274
Lottery Winners	44.5%	0.50	0	1	274
Age	41.1	12.4	19	75	274
Gender: Male	48%	0.5	0	1	274
Gender: Female	51%	0.5	0	1	274
Gender: Non-binary	1%	0.09	0	1	274
Political Attitudes (5-point likert)	3.32	1.31	1	5	274

Note: The data in panel A is for the combined sample of lottery- and effort-task participants. The data for the online experiment were collected using a representative sample using Prolific. The data for the laboratory experiment were collected on location at the University of Warwick. All subjects in the online and laboratory experiment were randomly allocated across the relevant task (including the observer treatment). See Appendix B for details on data collection.

Table A3: Summary Statistics 2: tax rates by sub-group

	Mean (1)	std. dev (2)	Min (3)	Max (4)	N (5)
Panel A: Luck Experiment - Effort tax					
High Earners, Full Information	31.175	25.18	0	100	40
Low Earners, Full Information	44.28	31.75	0	100	60
High Earners, Partial Information	25.16	28.14	0	100	56
Low Earners, Partial Information	46.77	35.56	0	100	46
Panel B: Luck Experiment - Luck tax					
High Earners, Full Information	43.28	30.21	0	100	40
Low Earners, Full Information	74.73	27.67	0	100	60
High Earners, Partial Information	42.36	31.47	0	100	56
Low Earners, Partial Information	76.32	26.10	0	100	46
Panel C: Effort Experiment - Effort tax					
High Earners, Full Information	14.89	14.29	0	50	38
Low Earners, Full Information	53.14	32.76	0	100	70
High Earners, Partial Information	25.71	25.98	0	100	28
Low Earners, Partial Information	46.46	31.56	0	100	78
Panel D: Effort Experiment - Luck tax					
High Earners, Full Information	43.74	28.82	0	100	38
Low Earners, Full Information	69.27	30.25	0	100	70
High Earners, Partial Information	43.71	35.28	0	100	28
Low Earners, Partial Information	73.37	27.59	0	100	78

Note: In each panel we report the descriptive statistics for subject choices of tax rates by the various sub-samples. We include: effort tax of those assigned to the luck experiment (panel A); luck tax of those assigned to the luck experiment (panel B); effort tax of those assigned to the effort experiment; and, luck tax of those assigned to the effort experiment (panel D).

Table A4: Lottery experiment and taxes on earned income

	Tax on Effort Income (1)	Effort tax over Luck tax (2)	Normalized effort tax (3)	Normalized effort tax over Luck tax (4)
Lottery Winner	-21.66***	-0.100*	-0.677***	-0.222*
	(5.068)	(0.0536)	(0.159)	(0.119)
Age	✓	✓	✓	✓
Gender	✓	✓	✓	✓
Academic Department	✓	✓	✓	✓
Political Ideology	✓	✓	✓	✓
Observations	202	202	202	202
R-squared	0.230	0.190	0.230	0.190
Dependent Variable Mean	36.94	0.595	-0.0546	-0.0294

Note: Standard errors are two-way clustered at the session and academic department levels. ***, **, * represents statistical significance at the 1%, 5% and 10% levels respectively. The table presents results from the lottery experiment. We therefore condition the sample on people who earned their money through the lottery experiment.

Table A5: Robustness to effort controls: Lottery experiment

	Tax on Effort Income			
	(1)	(2)	(3)	(4)
Lottery Winner	-22.25***	-23.43***	-23.90***	-24.04***
	(5.523)	(5.987)	(5.887)	(6.308)
Age	✓	✓	✓	✓
Gender	✓	✓	✓	✓
Academic Department	✓	✓	✓	✓
Political Ideology	✓	✓	✓	✓
Effort: Number correct	✓	✓	✓	✓
Effort: above threshold		✓	✓	✓
Effort: cubic polynomial in nm. correct			✓	✓
Effort: polynomial x above threshold				✓
Observations	202	202	202	202
R-squared	0.275	0.308	0.320	0.326
Dependent Variable Mean	36.94	36.94	36.94	36.94

Note: Standard errors are two-way clustered at the session and academic department levels. ***, **, * represents statistical significance at the 1%, 5% and 10% levels respectively. The table presents results from the lottery experiment. We therefore condition the sample on people who earned their money through the lottery experiment.

Table A6: Effort experiment and taxes on deserved income

	Polynomial Method			Kernel Method	Local Linear Method					
	Effort tax					z-score	Effort tax			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
RDD threshold	-30.18***	-49.34***	-34.61***	-35.08***	-56.82***	-1.777***	-41.20***	-91.17***	-35.08***	-71.24***
	(5.586)	(17.03)	(10.08)	(9.65)	(12.63)	(0.395)	(7.840)	(7.364)	(7.547)	(8.407)
Age	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Gender	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Academic Department	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Political Ideology	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
RDD running variable	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
RDD threshold interactions	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Bandwidth	.	.	.	1.4	3.4	3.4	4.4	2.4	5.4	1.4
Observations	214	214	214	50	99	99	124	72	148	50
R-squared	0.288	0.298	0.289	0.320	0.434	0.434	0.414	0.639	0.367	0.744
Dependent Variable Mean	40.33	40.33	40.33	33.08	36.03	-0.0829	37.73	35.75	38.91	33.08

Note: Standard errors are two-way clustered at the session and academic department levels. ***, **, * represents statistical significance at the 1%, 5% and 10% levels respectively. The table presents results from the effort experiment. For specifications using a bandwidth (columns 4-10) we start with the optimal bandwidth calculated using Calonico et al. (2014) (column 5, 6). We then show results using the optimal bandwidth + & - 1 (columns 7, 8 respectively) and + & - 2 (9, 10 respectively). For the kernel method (column 4) we use the smallest possible bandwidth (optimal -2) given the bias implications of using a large bandwidth in that specification.

Table A7: Effort experiment and taxes on deserved income over lottery income

	Polynomial Method			Kernel Method	Local Linear Method					
	Effort tax over luck tax					z-score	Effort tax over luck tax			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
RDD threshold	-0.149***	-0.416**	-0.148**	-0.216**	-0.333**	-0.740**	-0.195**	-0.699***	-0.138	-0.370
	(0.0510)	(0.160)	(0.0568)	(0.086)	(0.145)	(0.322)	(0.0898)	(0.186)	(0.0838)	(0.219)
Age	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Gender	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Academic Department	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Political Ideology	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
RDD running variable	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
RDD threshold interactions	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Bandwidth	.	.	.	1.4	3.4	3.4	4.4	2.4	5.4	1.4
Observations	214	214	214	50	99	99	124	72	148	50
R-squared	0.175	0.194	0.175	0.079	0.257	0.257	0.244	0.426	0.207	0.511
Dependent Variable Mean	0.621	0.621	0.621	0.588	0.573	-0.0782	0.571	0.574	0.589	0.588

Note: Standard errors are two-way clustered at the session and academic department levels. ***, **, * represents statistical significance at the 1%, 5% and 10% levels respectively. The table presents results from the effort experiment. For specifications using a bandwidth (columns 4-10) we start with the optimal bandwidth calculated using Calonico et al. (2014) (column 5, 6). We then show results using the optimal bandiwdth + & - 1 (columns 7, 8 respectively) and + & - 2 (9, 10 respectively). For the kernel method (column 4) we use the smallest possible bandwidth (optimal -2) given the bias implications of using a large bandwidth in that specification.

Table A8: Information provision: lottery versus effort winners

Sample	High-earners in either lottery or effort experiment					
Dependent Variable	Tax on Effort Income			Effort tax over Luck tax		
	(1)	(2)	(3)	(4)	(5)	(6)
Full Information x Lottery Experiment	13.15***	12.18**	12.59*	0.339**	0.328**	0.330*
	(4.341)	(4.806)	(6.428)	(0.155)	(0.156)	(0.160)
Full Information	-7.554*	-6.616	-7.030	-0.175	-0.164	-0.165
	(4.370)	(4.967)	(5.386)	(0.119)	(0.119)	(0.121)
Lottery Experiment	2.959	-0.123	-3.092	-0.0510	-0.0868	-0.104
	(3.461)	(4.353)	(5.208)	(0.0971)	(0.106)	(0.0986)
Effort: Linear		✓			✓	
Effort: Cubic polynomial			✓			✓
Gender	✓	✓	✓	✓	✓	✓
Age	✓	✓	✓	✓	✓	✓
Political Attitudes	✓	✓	✓	✓	✓	✓
Academic Department	✓	✓	✓	✓	✓	✓
Observations	162	162	162	162	162	162
R-squared	0.212	0.234	0.246	0.218	0.228	0.229
Dependent Variable Mean	24.33	24.33	24.33	0.524	0.524	0.524

Note: Standard errors are two-way clustered at the session and academic department levels. ***, **, * represents statistical significance at the 1%, 5% and 10% levels respectively. The table presents results from winners in either experiment.

Table A9: Robustness to earnings threshold fixed effects: Information Treatment

Sample	High-earners in either lottery or effort experiment					
Dependent Variable	Tax on Effort Income			Effort tax over Luck tax		
	(1)	(2)	(3)	(4)	(5)	(6)
Full Information x Lottery Experiment	13.28***	12.20**	12.73*	0.343**	0.329**	0.333**
	(3.927)	(4.476)	(6.245)	(0.143)	(0.147)	(0.149)
Full Information	-7.878*	-6.976	-7.554	-0.187*	-0.175	-0.181
	(4.254)	(5.076)	(5.406)	(0.109)	(0.112)	(0.114)
Lottery Experiment	2.944	-0.806	-4.009	-0.0545	-0.105	-0.125
	(3.672)	(5.027)	(5.352)	(0.0942)	(0.114)	(0.101)
Effort: Linear		✓			✓	
Effort: Cubic polynomial			✓			✓
Gender	✓	✓	✓	✓	✓	✓
Age	✓	✓	✓	✓	✓	✓
Political Attitudes	✓	✓	✓	✓	✓	✓
Academic Department	✓	✓	✓	✓	✓	✓
Earnings Threshold FE	✓	✓	✓	✓	✓	✓
Observations	162	162	162	162	162	162
R-squared	0.217	0.246	0.261	0.232	0.249	0.251
Dependent Variable Mean	24.33	24.33	24.33	0.524	0.524	0.524

Note: Standard errors are two-way clustered at the session and academic department levels. ***, **, * represents statistical significance at the 1%, 5% and 10% levels respectively. The sample includes winners from the effort and lottery experiments. We therefore condition the sample on people who earned their money through the lottery experiment.

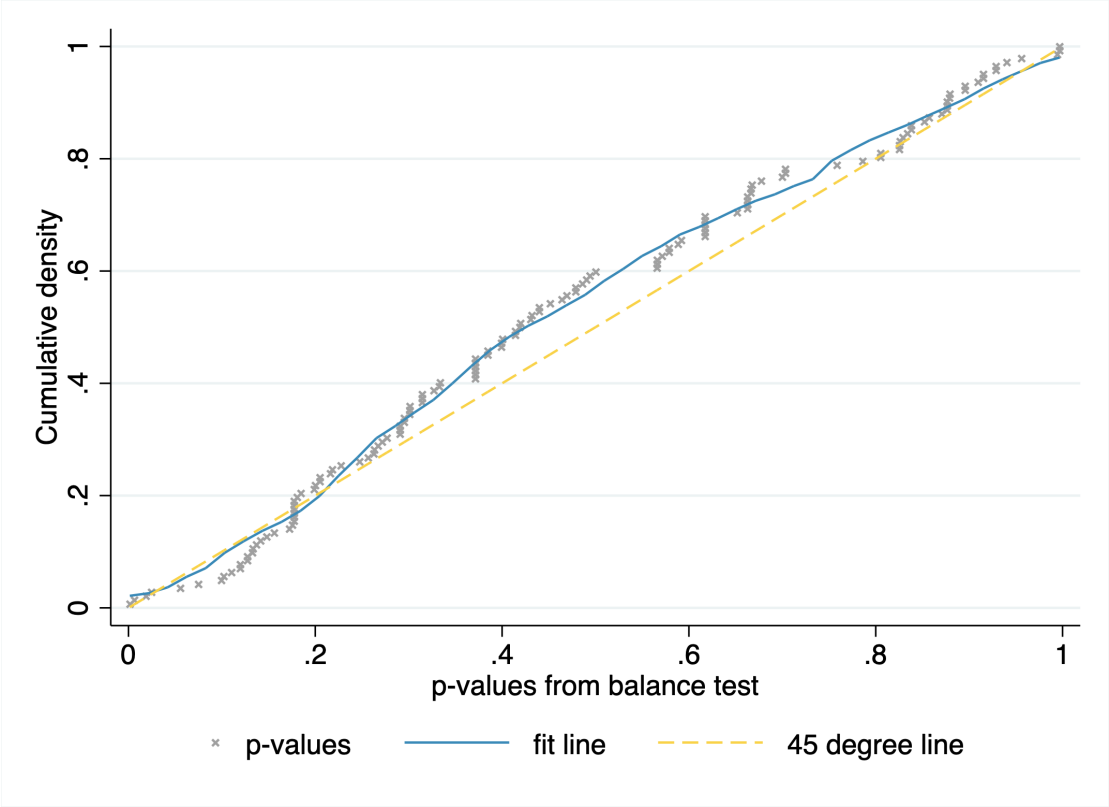


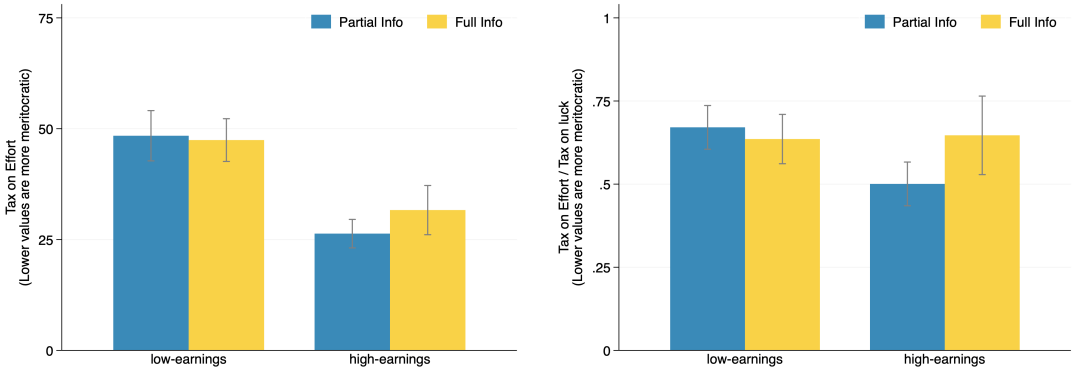
Figure A2: Balance test - online experiment

Note: The graph plots the distribution of p-values from a series of balance tests. All p-values are from regressions of treatment status (either winners, losers or observers) on each of our controls (state x 40; political idealogy x 5, gender, age). Overall 4.9% of the estimates have a p-value of 10% or less, 2.8% of the estimates have a p-value of 5% or less, and 1.4% of the estimates have a p-value of 1% or less.

Table A10: Information about income source: Lottery experiment

	Tax on Effort Income		Effort tax over Luck tax	
Income source info:	Full	Partial	Full	Partial
	(1)	(2)	(3)	(4)
Lottery Winner	-17.33**	-23.97***	0.0257	-0.169*
	(6.748)	(6.810)	(0.102)	(0.0825)
Age	✓	✓	✓	✓
Gender	✓	✓	✓	✓
Academic Department	✓	✓	✓	✓
Political Ideology	✓	✓	✓	✓
Observations	100	102	100	102
R-squared	0.205	0.353	0.251	0.369
Dependent Variable Mean	39.01	34.90	0.637	0.554

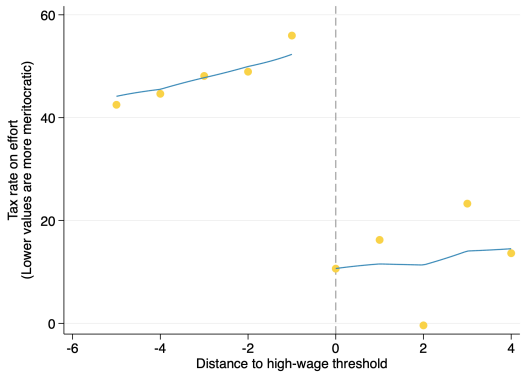
Note: Standard errors are two-way clustered at the session and academic department levels. ***, **, * represents statistical significance at the 1%, 5% and 10% levels respectively. The table presents treatment effect heterogeneity by information about income source. We condition the sample on people who earned their money through the lottery experiment.



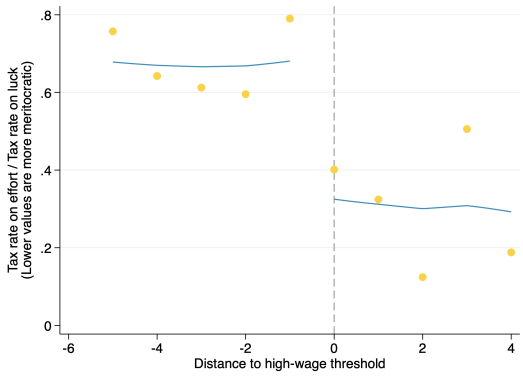
(a) Tax on effort **(b)** Tax on effort over tax on luck

Figure A3: Information in the lottery experiment

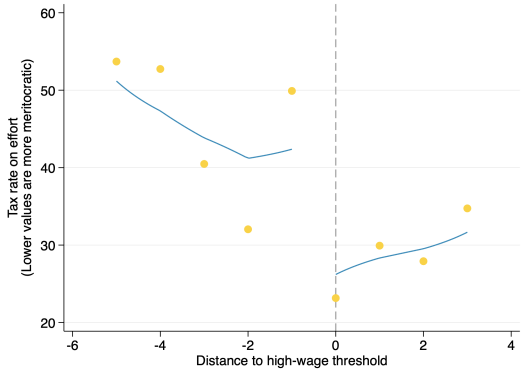
Note: The figure plots mean tax rates chosen in the lottery experiment for our two main measures of preferences for meritocratic redistribution. Mean choices of individuals randomly assigned to high-earnings is in pink, and mean choices of individuals randomly assigned to low-earnings is in blue. 90% confidence intervals are plotted for each. Each graph presents means plus residuals after conditioning out the standard set of controls, described in sections 3.B and 3.C.



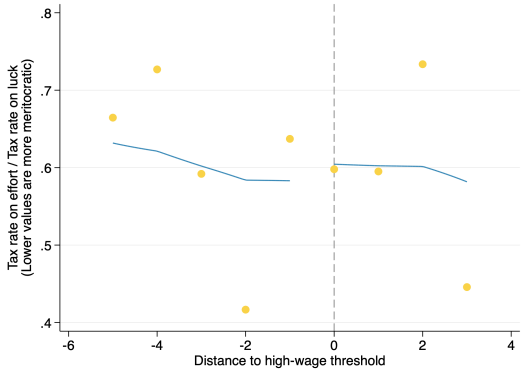
(a) Effort exp. - Income source unknown



(b) Lottery exp. - Income source unknown



(c) Effort exp. - Income source known



(d) Lottery exp. - Income source known

Figure A4: Information in the effort experiment

Note: The figure plots mean tax rates chosen in the effort experiment for our two main measures of preferences for meritocratic redistribution. Each subfigure plots mean tax choices against the number of correct addition problems solved relative to the threshold determining high-earnings. The dashed line at 0 represents the threshold, so the right of the dashed line represents high-earnings individuals, and to the left is low-earnings individuals. Each graph presents means plus residuals after conditioning out the standard set of controls, described in sections 3.B and 3.C.

Table A11: Wason task: solutions by earnings, information, and earnings source

	Wason Gap: correctly disproved statement: meritocratic - unmeritocratic			
	Partial Information		Full Information	
	Lottery (1)	Effort (2)	Lottery (3)	Effort (4)
RDD Threshold		-0.498**		-0.0869
		(0.183)		(0.790)
Lottery Winner	-0.248**		0.0195	
	(0.0880)		(0.0537)	
Age	✓	✓	✓	✓
Gender	✓	✓	✓	✓
Academic Department	✓	✓	✓	✓
Political Ideology	✓	✓	✓	✓
RDD running variable		✓		✓
RDD threshold interactions		✓		✓
Bandwidth		8.7		4.8
Observations	98	98	93	56
R-squared	0.176	0.450	0.286	0.520
Dependent Variable Mean	0.0612	0.0408	0.0645	0.0357

Note: Standard errors are two-way clustered at the session and academic department levels. ***, **, * represents statistical significance at the 1%, 5% and 10% levels respectively. The table presents results on the Wason task. The dependent variable throughout is a binary variable for whether the respondent successfully solved the Wason puzzle with a meritocratic statement minus whether they correctly solved the task with an unmeritocratic statement.

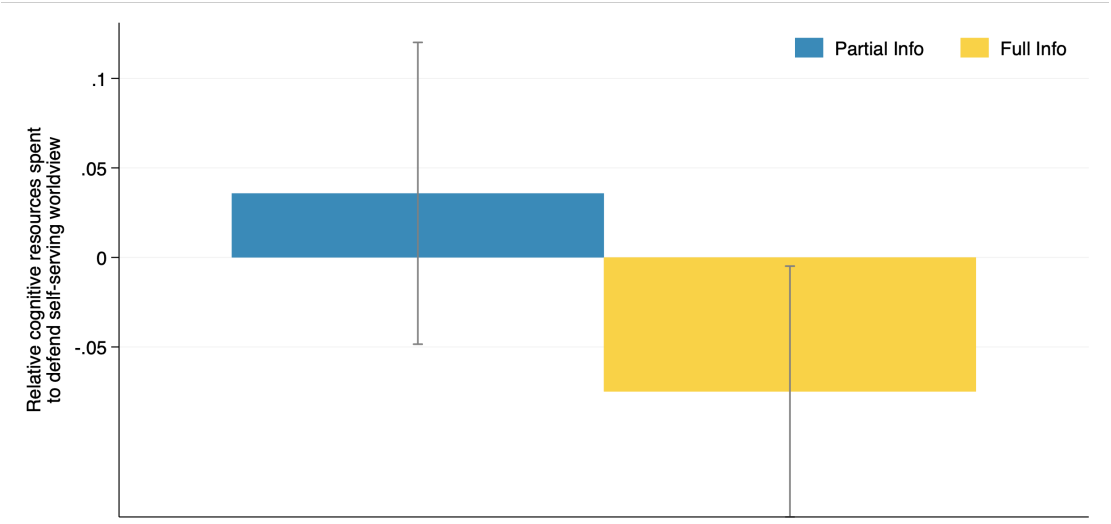


Figure A5: Wason Robustness

Note: The graph plots the same information as in figure 4.C.2, but on the sub-sample of lottery winners.

B. Data, Protocol and Survey

Data was collected from two experiments.

First, a laboratory experiment conducted at the University of Warwick from from November 2012 to February 2014. Second, an experiment conducted online in March/April 2021. The subjects were drawn from the American Prolific panel. Registration and pre-analysis plan information relating to this latter project can be found at https://www.socialscienceregistry.org/trials/7355. We excluded from our analysis the 26 individuals who exited the online experiment before completion or timed out of the effort task - resulting in 274 subjects. Similarly in the laboratory experiment, 36 subjects who did not engage with our experiment and meet our attention checks were excluded. For instance, as in the online experiment, we excluded all subjects who did not engage with the effort task and failed to attempt more than even a single two digit addition task. Similarly, we also excluded subjects who failed our attention checks such as ignoring whether the tax setter is subject to the tax or not. We asked all subjects to set two sets of tax rates: in one set, which is the main subject of our analysis, tax-setters are not subject to their own tax-rate. The second set of tax rates is only used as an attention check and allows subjects to be subject to their own tax rate which implies that they should (holding all else constant) set a weakly lower tax rate on themselves.

B.1. Protocol details: Laboratory experiment

The lab exercise was conducted at the University of Warwick from November 2012 to February 2014, all lasting approximately 45 minutes. The subjects were drawn from the Warwick recruitment pool, managed using the SONA system. The experimental instructions were provided on screen for each subject (and available in Figure B6). Seating positions were randomized. To ensure subject-experimenter anonymity, actions and payments were linked to randomly allocated participant ID numbers. Each subject was paid a show-up fee of £5 and up to a further possible £20 during the experiment (all payments were in Pounds sterling). Subjects were paid privately in cash. The experiment was run using purpose-built software programmed in Java.

Upon starting the experiment, subjects were shown a screen with the following:

> *Welcome to today's experimental session and many thanks for taking part. The session should last around 30-45 minutes and will involve you undertaking some tasks on the computer. Please read the instruc-*

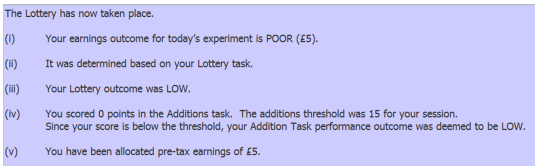
tions carefully before undertaking any tasks and raise your hand at any time if anything is unclear. Please do not use any electronic devices to help you today (so no calculators or anything that might help you on your phones or computer) or you face disqualification, but you can use the paper and pen provided if you wish.

Please note that everything you do today will be entirely anonymous and will be linked only to the workstation that was allocated to you at the start of the session, which was entirely random.

Your earnings outcome for today's experiment, RICH (£15) or POOR (£5) will be determined either by your addition task or your lottery outcome. For roughly half the people in the room, randomly chosen, the outcome will be determined by the addition task; for the others it will be determined by the lottery. In both cases, those with a HIGH outcome will end up RICH while those with a LOW outcome will end up POOR. From past experience we can say that roughly half the people in the room will end up RICH and the rest will end up POOR. On the next screen you will perform the Addition task. Click the start button below when you are ready.

After completing the addition task respondents were told whether they had earned a high or low income. The precise display of this information shown in figure B6.

(a) Partial information



(b) Full information

Figure B6: On-screen experimental instructions for full & partial information

After learning their pay they were asked about how they would like to redistribute any money for other people in the experiment. A screen-capture of the original instructions are included in figure B7.

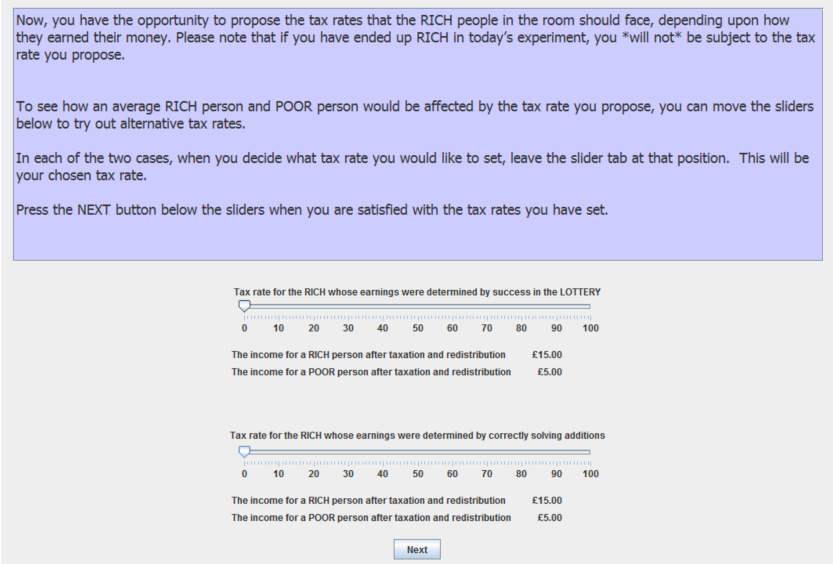


Figure B7: On-screen instructions: tax rates

B.2. Protocol details: Online experiment

The online experiment was conducted online in March 2021. The subjects were drawn from the American Prolific panel. The exercise was expected to take about 15 minutes, and on average it took subjects just over 15 minutes to complete the survey and experiment. The key experimental task was the Tower of Hanoi puzzle followed by the tax decision. All experimental instructions were provided on screen for each subject (Figure B7).

To start, subjects were given a brief questionnaire, and then a screen was shown explaining the assignment to the various treatment arms (figure B8).

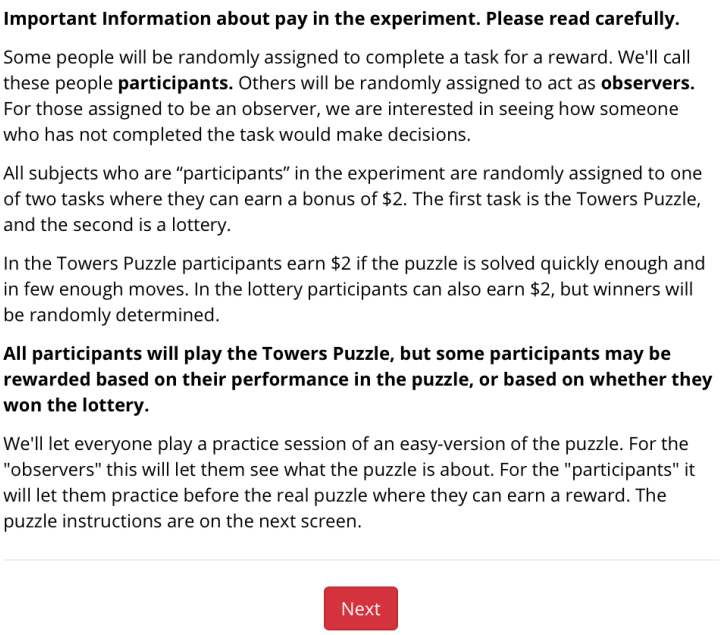
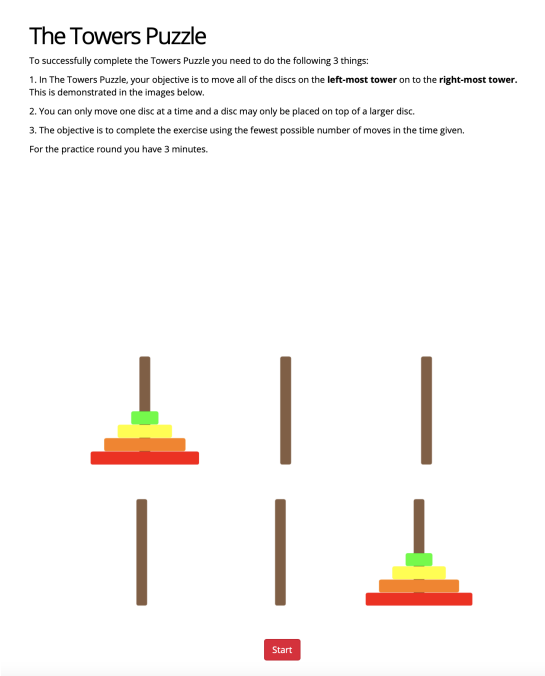
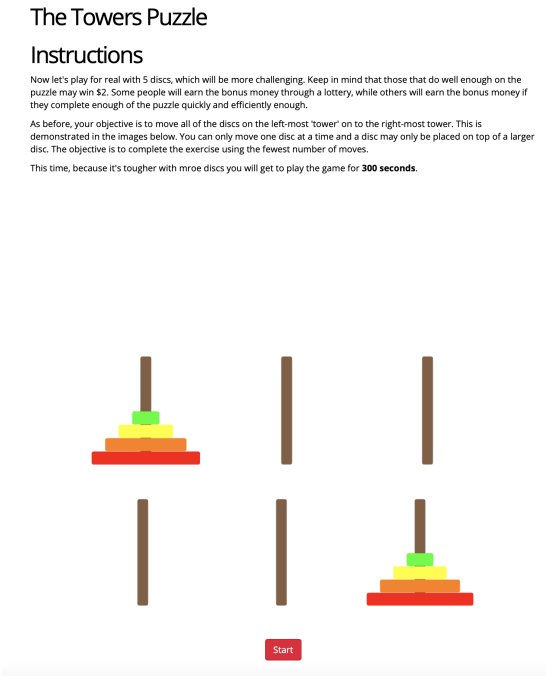


Figure B8: Online instructions: Introduction

Then respondents played a practice round of the experiment where the game was explained to them, and after that they played the game for real money (figure B9).



(a) Online instructions: practice round



(b) Online instructions: to win money

Figure B9: Practice round and actual round: Tower of Hanoi puzzle

Upon completing the puzzle all subjects were immediately informed whether they would receive the bonus. All participants were in a 'partial information treatment' so they were not aware of whether they won through the lottery or because of their performance on the puzzle figure B10.

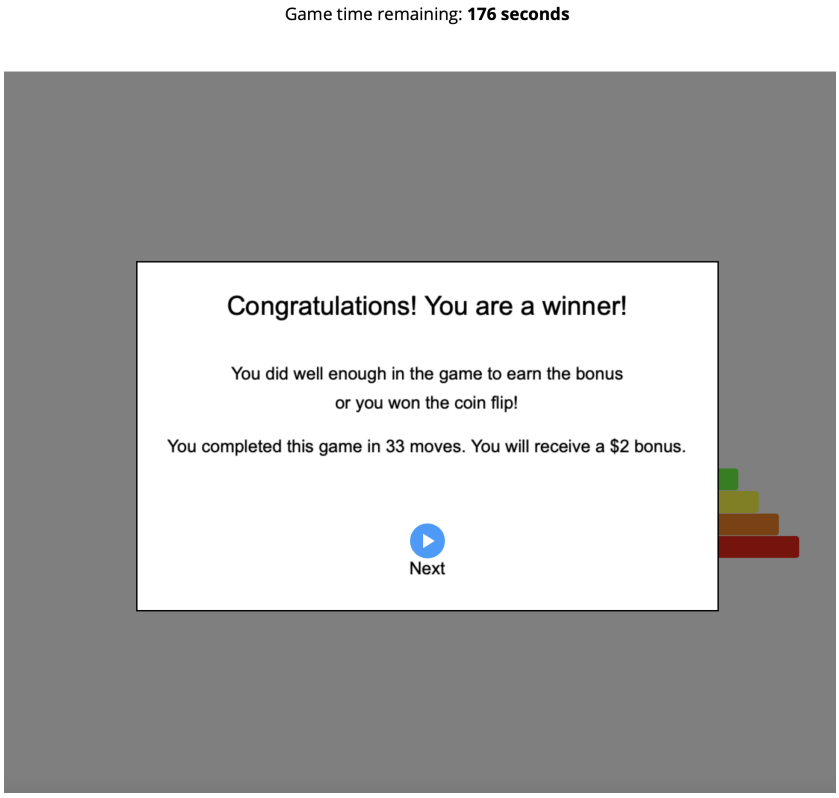


Figure B10: Online instructions: notification of earnings

Each subject was paid an average of £7.98 / hr - this is managed by Prolific and more or less is paid to induce representativeness, given the supply of Prolific users. Users also had the opportunity to earn an additional $2 bonus payment in the experiment. The experiment was implemented using the Gorilla online platform. The experiment was pre-registered with the AEA registry, which can be seen here: https://www.socialscienceregistry.org/trials/7355

B.3. Original survey

1. Age
2. Gender
3. Year of study
4. Main department of school of your degree programme
5. What is your nationality?
6. What was the highest educational attainment of your father?

7. What was the highest educational attainment of your mother?
8. Father's occupation
9. Mother's occupation
10. Did either of your parents attend a private (fee-paying) school?
11. Which Universities did you apply to, for your UG degree (please list names of up to 5 places, in your order of your most to least-preferred Uni)
12. Do you receive any government support for your university studies, excluding loans?
13. Do you have a student loan?
14. What are your views on public spending by the UK government?
15. Where would you consider yourself on the following 7-point political spectrum?
16. If you receive £100 with 10% probability, £50 with 30% probability and 0 with 60% probability what is your expected winnings?
17. If success is determined by two factors, luck and ability / effort, how important do you think luck is in life for people, in general? [please give a percentage]
18. What do you think is the most pressing issue in the world economy at this time?
19. What do you plan to do within three years after you complete your UG degree?
20. What do you see yourself doing ten years after Uni?

B.4. Online survey

After collecting consent, we collected data from a number of attitudes questions in the online survey. The pre-experiment questions are as follows:

1. What is your gender?
    - female; non-binary; male; prefer not to say; Other (please specify)

2. What is your age?

3. What was your income, before taxes, over the past year (in 1000s)?

4. In which zip-code do you live?

5. How would you describe your political affiliation?

    - Democrat; Republican; Independent; Other

6. How would you describe your attitude towards economic policy?

    - very right-wing; right-wing; moderate; left wing; very left wing

7. To what extent to you agree with the following statement: Differences in income are a function of an individual's effort in life rather than an individual's luck.

    - strongly agree; agree; neither agree nor disagree; disagree; strongly disagree

8. Consider the case of one of the richest persons in the world, Harvard-educated Lloyd Blankfein, the CEO of Goldman Sachs. Indicate the extent to which luck or talent/effort played a role in his becoming one of the richest persons in the world.

    - Luck played no role - it was all effort / ability; Luck played a smaller role than effort / ability; Luck and effort / ability were roughly equally important; Luck played a larger role than effort / ability; Effort / ability played no role - it was all luck

After completing the puzzle and being informed that they did or did not win the bonus, subjects answered the following questions:

1. Consider the following decision that relates only to money earned from the Towers Puzzle, and not money earned via lottery: You can reallocate some of the money from the people who earned their money through doing well enough on the Towers Puzzle to the ones who did not receive the $2 bonus, and received no additional money. Please use the slider below to choose how you would reallocate some (if any) of the $2 earnings (in cents) to those that didn't earn any bonus money. Note: your answer does not in any way impact your earnings in the experiment.

2. Consider the following decision that relates only to money earned from the lottery, and not money earned via Towers Puzzle: You can reallocate some of the money from the people who earned their money through the lottery to the ones who did not receive the $2 bonus, and received no additional money. Please use the slider below to choose how you would reallocate some (if any) of the $2 earnings (in cents) to those that didn't earn any bonus money. Note: your answer does not in any way impact your earnings in the experiment.

3. Which of the following statements do you think best describes what the experimenter wanted to show?

    - Thinking about the luck or effort put in by others will change your actions; Success is a mixture of luck and hard work and people realize this; Luck is more important than hard work in life; Luck is less important than hard work in life; People are fully aware of whether it is luck or effort that drives their success; People who get lucky often falsely attribute their success to effort; People who work hard often falsely attribute their success to luck; People who are successful often attribute others' success to their merit; People who are successful feel guilt when they realize that others who hard work are not always rewarded; When faced with a chance that luck will end up generating success people will put in less effort; In the end it doesn't matter whether it is luck or effort that is rewarded some people will always do their best

B.5. The Wason Task

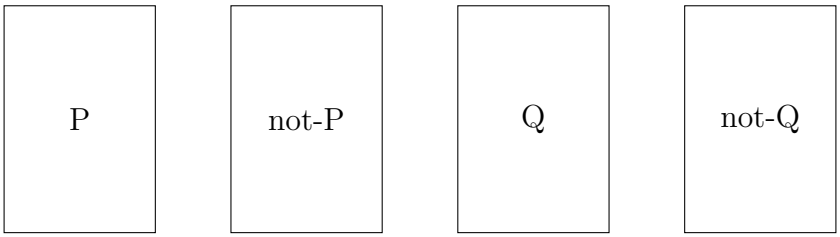
The Wason task is typically centered around the following type of statement.

If P	then Q
e.g.	
If *a respondent is rich,*	then *they must have been lucky*

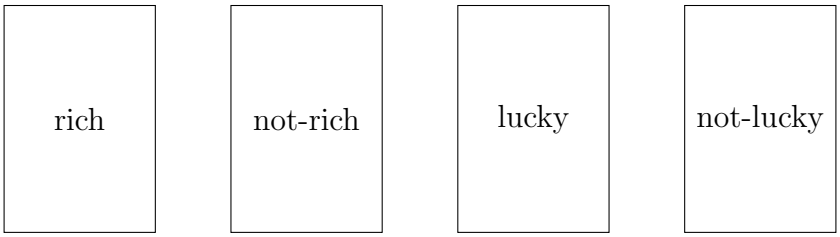
In our case, we placed the statement within the following context:

> *Suppose that an independent observer of the experiment, Mr. Taylor, asserts that the following statement is true about the participants: 'If a participant in the experiment becomes rich, then (s)he must have been lucky and obtained a high lottery payout.'*

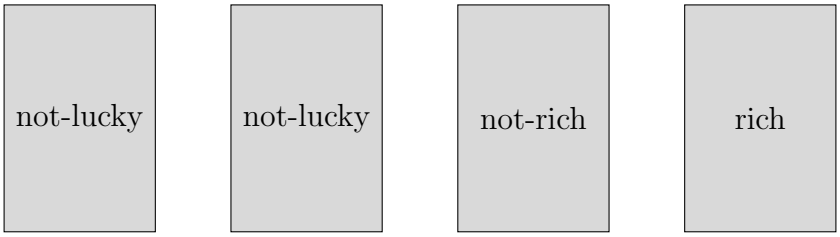
Generally in the Wason task, respondents are then shown 4 cards as follows:



In our case this is:

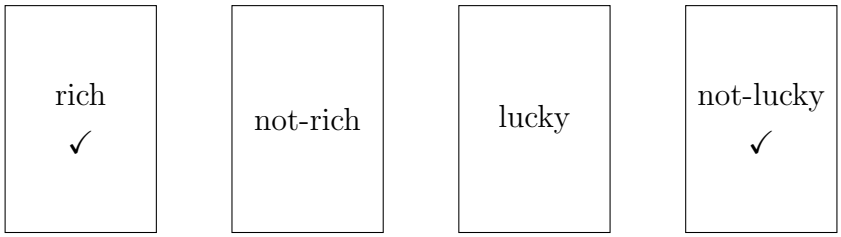


On the reverse of the P cards is an associated Q statement, and vice versa, e.g.:

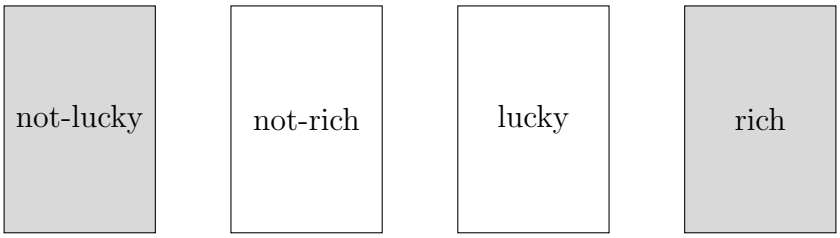


Respondents must flip 2 cards to *disprove* the statement. In our case we presented this as follows:

> *However, Mr. Taylor may be wrong. You are interested in seeing whether there are any participants whose performance violates his claim. The cards below represent four students who have taken part in the experiment. Each card represents one student. One side of the card tells you whether the student is rich or not. The other side of the card tells you whether the student got lucky with a high lottery payout or not. You can only see one side of a card at a time. Your task is to decide which of these card(s) would definitely need to be checked on their reverse side, to verify whether any of these participants prove Mr. Taylors statement to be wrong: 'If a participant in the experiment becomes rich, then (s)he must have been lucky and obtained a high lottery payout. In order to receive the bonus payment you must click on exactly the right card(s) below but no other(s).*



These cards would be flipped, so that the answer was:



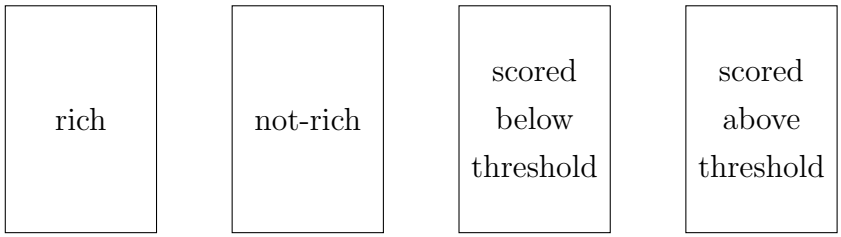
Flipping card 1 is correct because not-lucky on the reverse means the rule is disproven. It is an example of someone who was rich who was not lucky, disproving that all rich are lucky. Card 2 is incorrect, because it can still be that all rich are lucky, even if some poor are either lucky or unlukcky. Similarly card 3 does not help because if even if some of the poor were lucky, it can still be that all rich were. Finally card 4 again disproves the statement, if it is flipped and it reads rich, then it is an example of some people who were both unlucky and rich - these people cannot exist if it is true that all rich are lucky.

We followed the same procedure for Wason task 2, however the statement was changed. Instead, respondents saw the following:

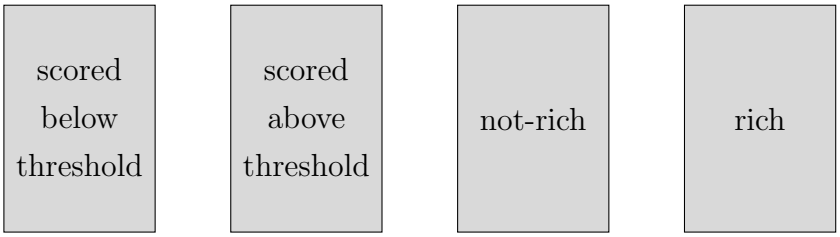
> *Suppose that an independent observer of the experiment, Mr. Taylor, asserts that the following statement is true about the participants: "If a participant in the experiment becomes rich, then (s)he must have been hard working and hence scored above the threshold."*
>
> *However, Mr. Taylor may be wrong. You are interested in seeing whether there are any participants whose performance violates his claim. The cards below represent four students who have taken part in the experiment. Each card represents one student. One side of the card tells you whether the student is rich or not. The other side of the card tells you whether the student worked hard and scored above the threshold or not. You can only see one side of a card at a time. Your task is to decide which of these card(s) would definitely need to be checked on their reverse side, to verify whether any of these participants prove*

Mr. Taylor's statement to be wrong: 'If a participant in the experiment becomes rich, then (s)he must have been hard working and hence scored above the threshold.' In order to receive the bonus payment you must click on exactly the right card(s) below but no other(s).

For Wason 2, the cards were as follows:



and on the reverse:



C. Data and Code Availability

C.1. Data Availability Statement

We intend to strip the data of any identifiable information and make publicly available the data on at least one of the author's websites. This will be completed prior to publication.

C.2. Code Availability Statement

The analysis was performed in Stata, and we intend to post all code to replicate the estimates presented in the paper on at least one of the author's websites. This will be completed prior to publication.